FOSTERING A SUSTAINABLE AGRO-INDUSTRIALISATION AGENDA IN UGANDA

2018

Copyright © Economic Policy Research Centre (EPRC)

The Economic Policy Research Centre (EPRC) is an autonomous not-for-profit organization established in 1993 with a mission to foster sustainable growth and development in Uganda through advancement of research –based knowledge and policy analysis. Since its inception, the EPRC has made significant contributions to national and regional policy formulation and implementation in the Republic of Uganda and throughout East Africa. The Centre has also contributed to national and international development processes through intellectual policy discourse and capacity strengthening for policy analysis, design and management. The EPRC envisions itself as a Centre of excellence that is capable of maintaining a competitive edge in providing national leadership in intellectual economic policy discourse, through timely research-based contribution to policy processes.

Disclaimer: The views expressed in this publication are those of the authors and do not necessarily represent the views of the Economic Policy Research Centre (EPRC) or its management.

Any enquiries can be addressed in writing to the Executive Director on the following address:

Economic Policy Research Centre
Plot 51, Pool Road, Makerere University Campus
P.O. Box 7841, Kampala, Uganda
Tel: +256-414-541023/4
Fax: +256-414-541022
Email: eprc@eprcug.org
Web: www.eprcug.org

ACKNOWLEDGMENTS

This Report on Fostering a Sustainable Agro-industrialisation (AGI) Agenda in Uganda was prepared
Policy Research Centre (EPRC), an independent and Go-To policy think tank. There were a numbe
to this Report, and therefore this acknowledgement would be incomplete without a narrative of the ro
the compilation of this Report.

In January 2017, a need emerged for Ministry of Finance, Planning and Economic Development (Mo
evidence-based practical policy solutions to address the declining performance of the Ugandan eco
sponded to the call from MoFPED by putting together two policy notes; the first of which was titled -
Approach to Uganda's Export Strategy'. This provided critical evidence cited in the Budget Speech for Fiscal Year
2017/18 under the theme 'Industrialisation for Job Creation and Shared Prosperity' delivered by the Minister of Finance
to the nation.

Subsequently, EPRC was tasked to produce a second policy note on Agro-industrialisation, titled '
sation for Inclusive Growth and Development', which demonstrated that it is feasible to realise inclusive econo
growth and development in Uganda through Agro-industrialisation. Strengthened research ties bet
MoFPED led to the establishment of a new initiative, the Strategic Economic Policy and Managem
Forum, in the Office of the Secretary to the Treasury, MoFPED; with EPRC taking the lead in providi
policy oriented policy notes. Through the STEPMAN Forum, EPRC was tasked with conducting in-d
ed research to guide Uganda's AGI agenda for the next five years. Thus, EPRC devoted most of its
research work plan to AGI activities.

This Report is a synthesis of six background papers and nine case studies conducted by different
ers and research associates. Their relentless efforts are highly acknowledged for their various con
background papers as follows:

- Guloba Madina, Julius Kiiza and Isaac Shinyekwa, Continental and Regional Context of Agro-indus
  trialisation in Uganda.
- Munyambonera Ezra, Job Lakal, Paul Corti Lakuma, Florence Nakazi, and Mwesigye and Luther Mu
  Institutional Frameworks for Agro-industrialisation
- Mwesigye Francis, Mildred Barungi, Florence Nakazi and Madina Guloba, Improving Agricultural Production
  and Productivity, and Upgrading Crop Value Chains to Promote Agro-industrialisation
- Mbowa Swaibu and Tonny Odokonyero, Strategies for Scaling up Sustainable Agro-Manufacturing in Uga
  da.
- Shinyekwa Isaac, Martin Luther Munu and Amita Ntale, Increasing and sustaining Uganda's external trade in
  agro-industrial products
- Rudaheranwa Nichodemus, Promoting Domestic Trade through Agro-industrial Development in Ugan
- Sserunjogi Brian Mariam Katunze and Ibrahim Kasirye, Assessment of Financing Sources for Fostering Agro-in
  dustrialisation in Uganda

The several organisations that generously shared their data and other research materials to facilita
sultations are duly appreciated. These included, among others, the Grain Council of Uganda (TGCU
Development Authority (UCDA); Cotton Development Organisation (CDO); Dairy Development Auth
cultural Credit Facility (ACF) of Bank of Uganda; Uganda Development Bank (UDB); Uganda Tea A
Uganda Development Cooperation (UDC); Uganda Ginners Cotton Association (UGCEA); Kalanga
National Fisheries Resources Research Institute (NaFIRRI); National Semi-Arid Resources Resea

SARRI); The Root Crops programme in Namulonge; National Genetic Resource Information Cent
(NAGRIC&DB); Uganda National Farmers Federation (UNFFE); Uganda Warehouse-Receipt Syste
SA); Uganda Fish Processors and Exporters Association (UFPEA); Uganda Export Promotion Board (UEPB); Buga
Cultural and Development Foundation; BUCADEF; and private sector players including Private Sector Foundat
Uganda (PSFU) and Uganda Manufacturers' Association (UMA).

The draft AGI synthesized Report benefited from numerous presentations and consultations with
holders. Among these was the one-day consultative workshop held at EPRC in February 2018 wh
mapped the institutional, regulatory and policy framework for AGI in Uganda. Key presentations i
Directorate of Economic Affairs (MoFPED) in November 2017; the STEPMAN Forum meeting in
presentation to Hon. Vincent Ssempija, Minister of Agriculture Animal Industry and Fisheries (MAA
In May 2018, further presentations were made to (i) the Top Management of MoFPED, (ii) National P
(NPA) team, (iii) Members of Parliament, (iv) the Research Advisory Panel (RAP) of EPRC. Presen
made to the Top Management of MoFPED and to the Deputy Secretary to Treasury and chair of the
in June and July 2018, respectively.

In August 2018, the MoFPED decided to act on some of the ground-breaking recommendations in t
this point, an AGI Top Technical Committee, made up of representatives from the relevant Ministrie
and Agencies (MDAs) and private sector players, was formed. The Committee agreed to operation
recommendations in the AGI draft Report, including to shift from a piecemeal approach to a progra
Uganda's AGI agenda, and the creation of an AGI Steering Committee to provide effective coordin
gram. The Steering Committee is chaired by MoFPED, with representation from Private Sector Fo
(PSFU), Operation Wealth Creation (OWC), Office of the Prime Minister (OPM), and EPRC. The
mittee identified actionable policy recommendations in the AGI Report that were translated into Key
guide the 2019/2020 programme-based budgeting for Public Investment Management in Agro-Indu
policy messages in the AGI Report were finally presented at the National Budget Conference and
Forum FY 2019/2020, held on September 13, 2018.

The editorial support provided by Prof. Julius Kiiza, Hon Prof. Morris Ogenga-Latigo and Mr. Joh
highly acknowledged. Special thanks are extended to the EPRC Research Advisory Panel (RAP); P
Kyomuhendo, Dr. John Ssekamatte-Ssebuliba, and Mr. Gideon Badagawa; for the relentless suppo
entire EPRC research staff throughout this process. The regular members of the STEPMAN Forum
ilap, Deputy Secretary to Treasury, MoFPED; Mr. Joseph Enyimu, Ag. Commissioner, EDP&RD, M
Bekabye, Economic Advisor, MoFPED; Mr. Chris N. Mukiiza, Director, Macroeconomic Statistics, U
Nakabiri, Economist, MoFPED are highly acknowledged for their support towards the AGI activities

Lastly but not least, sincere appreciation to the EPRC drafting team – Dr. Swaibu Mbowa, Dr. Fra
Dr. Madina M. Guloba and Dr. Ibrahim Kasirye under the leadership of Dr. Sarah N. Ssewanyana
commitment in putting the Report together as well as overall coordination of the various interaction
stakeholders.

TABLE OF CONTENTS

ACKNOWLEDGMENTS 1
FOREWORD 7
ABBREVIATIONS/ACRONYMS 8
EXECUTIVE SUMMARY 11

1. INTRODUCTION 14
1.1 Macroeconomic and Industrial Experience Insights 16
1.2 Why Agro-industrialisation? 16
1.3 Structure of the Report 17

2. CONCEPTUALISATION OF AGRO-INDUSTRIALISATION 18
2.1 What is Agro-industry? 18
2.2 Analytical Framework 19
2.3 Report Approach 20
2.4 Scope of the Report 20

3. LEVERAGING UGANDA'S INSTITUTIONAL FRAMEWORKS FOR AGRO-INDUSTRIALISATION 22
3.1 National Commitments 22
3.2 Legal and Policy Responses 22
3.3 Institutional Arrangements 25
3.4 Programs Supporting Agro-Industry Development 27
3.4.1 Commodity specific agencies/organisations 27
3.4.2 Plan for Modernisation of Agriculture 27
3.4.3 Operation Wealth Creation 28
3.4.4 Agricultural Cluster Development Project 28
3.5 Policy Incentives in Support of Agro-industrialisation 28
3.6 What are the Requisite Transformative Shifts on Policy Incentives? 31
3.7 Conclusion 32

4. UNLOCKING AGRICULTURAL PRODUCTION FOR AGRO-INDUSTRIALISATION 33
4.1 Who are Ugandan Farmers? 33
4.2 Production and Productivity 33
4.2.1 Crop productivity 33
4.2.2 Livestock productivity 35
4.2.3 Production targets of key Agro-industrialisation commodities 36
4.3 Enablers of Agricultural Production 37
4.3.1 Research and development 37
4.3.2 Land 40
4.3.3 Agricultural knowledge and information systems 41
4.3.4 Agricultural risks and mitigation measures 43
4.3.5 Infrastructure for production 43
4.3.6 Re-organising agricultural production for industry 45
4.4 Conclusion 46

5. TRANSFORMATIVE MANUFACTURING FOR AGRO-INDUSTRIALISATION 48
5.1 Agro-industry as a Driver of the Manufacturing Sector 48
5.2 An Outlook of Strategic Agro-manufacturing Industries 52
5.2.1 Coffee industry 52
5.2.2 Tea industry 55
5.2.3 Fisheries industry 56
5.2.4 Cotton industry 58
5.2.5 Maize industry 60
5.2.6 Dairy industry 61

5.2.7 Beef industry 63
5.2.8 Cassava industry 64
5.2.9 Oil Palm industry 68
5.3 Enablers of Agro-Manufacturing Industries 70
5.3.1 Access to finance 70
5.3.2 Infrastructure investment 70
5.3.3 Quality and standards certification 71
5.3.4 Research, Development and Innovation 71
5.4 Conclusion 71

6. MARKET ACCESS FOR AGRO-INDUSTRIAL PRODUCTS 73
6.1 Potential and Untapped Domestic Market 73
6.2 Potential External Market 74
6.2.1 Market analysis 74
6.2.2 Market opportunities 79
6.3 Enablers to Tap into Market Opportunities 82
6.3.1 Capacities and capabilities 82
6.3.2 Liberalised markets 82
6.3.3 Quality, standards and certification 83
6.3.4 Regional political stability 83
6.4 Conclusion 84

7. FINANCING FOR THE AGRO-INDUSTRIALISATION AGENDA 85
7.1 Financing Targets 85
7.2 Sources of Finances 86
7.2.1 Direct Government Funding 86
7.2.2 Development Partners 88
7.2.3 Private financing 89
7.3 Financing Mechanisms 90
7.3.1 Public Private Partnerships 90
7.3.2 Group lending 91
7.3.3 Medium to long-term financing 91
7.3.4 SACCO/Cooperatives 93
7.4 Alternative Financing Models 93
7.4.1 Agricultural loan guarantees 93
7.4.2 Contract farming 93
7.4.3 Warehouse receipt systems 94
7.5 Conclusion 94

8. KEY MESSAGES AND PROPOSED POLICY ACTIONS 95
8.1 Key Messages 95
8.2 Policy Actions 96
8.2.1 Integrated model for agro-industry 97
8.2.2 Program approach to Agro-industrialisation 101
8.2.3 Unified institutional framework 101
8.2.4 Government role to go beyond an enabling environment 101

BIBLIOGRAPHY 102
APPENDICES 107
Appendix 1: Trends in arable land per capita (hectares per person) 107
Appendix 2: Destinations of Uganda's agro-industrial products in 2015 108
Appendix 3: Lessons from China's Township and Village Enterprises 110
Appendix 4: Installed and utilised capacity for small scale dairy firms 111
Appendix 5: Installed and utilised capacity for cottage dairy firms 111

LIST OF FIGURES

Figure A.1. Proposed integrated model for agro-industry 13
Figure 1: Analytical framework for Agro-industrialisation 19
Figure 2: Institutional, regulatory and policy framework for Agro-industrialisation 24
Figure 3: Complexity of the institutional arrangements guiding Agro-industrialisation Agenda 26
Figure 4: Decline in crop productivity is eroding production base 34
Figure 5: Uganda's cattle mean production and yield 36
Figure 6: Trends in milk producing cows, milk production and yield in Uganda (T.E) 36
Figure 7: Funding research and development for NARO, UGX billon 39
Figure 8: Percentage of farmers with access to public extension services in 2013/14 and 2015/16 42
Figure 9: Uganda's manufacturing value added as share of GDP, 1991-2016, % 49
Figure 10: Distribution of agro-processing firms and GDP per capita by district 51
Figure 11: Coffee industry value chain 53
Figure 12: Robusta coffee exports (million bags) and unit price (USD) by grade, FY2016/17 53
Figure 13: Arabica coffee exports (million bags) and unit prices (USD), FY2016/17 54
Figure 14: Product space in tea industry 56
Figure 15: Trends in operating capacity of cotton ginneries 59
Figure 16: Cotton value chain 59
Figure 17: Installed capacity of millers in terms of maize flour % 60
Figure 18: Dairy sector processing capacity for large scale firms 62
Figure 19: Product space in the dairy value chain 62
Figure 20: Fresh Cuts Uganda beef supply chain 63
Figure 21: Cassava value chain 66
Figure 22: Value of imports of pure lactose, maltose, glucose and fructose (USD'000) 67
Figure 23: Progressive trend in oil palm and crude oil palm production 68
Figure 24: Oil palm value chain 69
Figure 25: Distribution of sources of finance by manufacturing firms, % 70
Figure 26: Uganda's trade balance in edible oils and fats (USD '000) 74
Figure 27: Volume of Fish exports and earnings (USD 'million) 76
Figure 28: Uganda's share in the textile GVCs in comparison with its key competitors, 2012-2016 77
Figure 29: Exports and imports of dairy products (USD 'million) 78
Figure 30: Exports and imports of different dairy products, USD (million) 78
Figure 31: Uganda's trade with China and Turkey, 2001-2016 (USD million) 80
Figure 32: GDP per capita growth rates in the EAC (constant 2010 USD) 81
Figure 33: Distribution of actual public expenditure towards the production base (UGX billion) 86
Figure 34: Public expenditure towards marketing, UGX billion 87
Figure 35: Distribution of public support to selected commodities % 87
Figure 36: Agriculture ODA sub-sector allocations to Uganda % 88
Figure 37: ODA commitments to agriculture sector by type of aid (USD million) 89
Figure 38: Activity funded under the ACF as at December 2017 91
Figure 39: UDB loan portfolio by key sectors (UGX billions) 93
Figure 40 Proposed integrated model for Agro-industrialisation for Uganda 97

LIST OF BOXES

Box 1: Characterisation of Ugandan farmers 33
Box 2: How Uganda's coffee industry compares with that of Vietnam? 35
Box 3: Illustration of the role of private sector in R&D 40
Box 4: Crop specific extension service provision: the case of cotton 43
Box 5: Examples of integrated models of production 47
Box 6: A snapshot of cassava Agro-Manufacturing efforts in Lira and Apac districts 65

LIST OF TABLES

Table 1: Agricultural commodity production trends, targets and gaps 37
Table 2: Uptake of productivity enhancing technologies by farmers, % 38
Table 3: Production risks and mitigation measures 44
Table 4: Organisational models for agricultural production in value chains 46
Table 5: Trends in manufacturing index of production (2002=100) 48
Table 6: Indicators of Manufacturing Value Added for the EAC Partner States, 2016 49
Table 7: EAC partner states Competitive Industrial Performance Index, 2016 49
Table 8: Tea factory gap by geography in 2015 55
Table 9: Trends in Uganda's fisheries product space (tonnes) 57
Table 10: Uganda textile and apparel trade balance (USD '000) 73
Table 11: Value of exports of cattle and beef products (USD '000) 77
Table 12: Financing gap for some of the selected priority commodities (UGX billion) 85
Table 13: Outstanding loans to agriculture (UGX Bn) and shares (%) of different subsectors 89
Table 14: Channel of private sector finance to the Agriculture sector % 90

FOREWORD

Uganda's long-term goal, as outlined in the Vision 2040, is to industrialize and transform the str
economy. Given the dominance of agriculture as a source of livelihood, there is no doubt that Agro-
(AGI) offers a great opportunity for the country to embark on its aspiration of transitioning into a mo
economy.

In pursuit of this goal, the Ministry of Finance, Planning and Economic Development (MFPED) und
of the Strategic Economic Policy and Management (STEPMAN) Forum set out in 2017 to provide
practical policy solutions to address the slowdown in performance of the Ugandan economy. The Fo
tasked the Economic Policy Research Centre (EPRC) to take lead in conducting an in-depth policy
to guide Uganda's AGI agenda for the next five years. The product of that initiative is this report titl
Fostering the Sustainable Agro-Industrialization Agenda in Uganda.

This development prompted EPRC to devote most of its 2017/2018 research work plan to AGI activ
into production of policy notes on Transformative approach to Uganda's export and Agro-Industrialization
for Inclusive Growth and Development which are a precursor to the final report. The actionable policy recom
dations in the AGI Report also translated into Key Result Areas to guide Programme-Based Budg
Investment Management in Agro-Industry (PIMA) in FY 2019/2020 and the medium term.

I am happy to report that MoFPED through the PIMA Taskforce commenced period engagements
with relevant Ministries, Departments and Agencies (MDAs) and private sector players, to act on
ground-breaking recommendations in the AGI draft report, including a shift from a piecemeal to a pro
for the AGI agenda. An AGI Steering Committee chaired by the Permanent Secretary/ Secretary to
been formed to provide effective coordination of the Program.

I am therefore pleased to present to you this report which identifies the immense benefits of the ag
linked to industry, including adoption of better production technologies, expanding the export and d
bases of the country and creating necessary preconditions for Uganda's structural transformation i
ue-added manufacturing economy.

I acknowledge the invaluable contribution from all stakeholders including EPRC researchers and th
team, various organizations that shared their data, and the editorial team. I pledge on behalf of the
government will continue to implement the report recommendations while continuing the engageme
ious stakeholders.

Patrick Ocailap
Deputy Secretary to the Treasury/Chairman, STEPMAN Forum
MINISTRY OF FINANCE, PLANNING AND ECONOMIC DEVELOPMENT

ABBREVIATIONS/ACRONYMS

ACDP	Agriculture Cluster Development Project
ACF	Agricultural Credit Fund
AfDB	African Development Bank
AfCFTA	Africa Continental Free Trade Area
AfrII	African Innovations Institute
AGI	Agro-industrialisation
ASSP	Agriculture Sector Strategic Plan
ASYCUDA	Automated System for Custom Data
ATAAS	Agricultural Technology and Agribusiness Advisory Services
BATs	Bilateral Trade Agreements
BUBU	Buy Uganda Build Uganda
BTVET	Business Technical Vocational Education and Training
CAR	Central African Republic
CARP	Cassava Community Action Research Programme
CDO	Cotton Development Organisation
CET	Common External Tariff
CMB	Coffee Marketing Board
COMESA	Common Market for Eastern and Southern Africa
CPI	Consumer Price Index
CPSP	Cotton Production Support Program
CRS	Creditor Reporting System
CKWs	Community Knowledge Workers
DPs	Development Partners
DRC	Democratic Republic of Congo
DRUGARs	Dry Processed Uganda Arabicas
EAC	East African Community
EPB	Export Promotion Board
EPRC	Economic Policy Research Centre
ERP	Economic Recovery Programme
EU	European Union
FAO	Food and Agriculture Organisation
FAQ	Fair Average Quality
FDIs	Foreign Domestic Investments
FFB	Fresh Fruit Bunches
FMEU	Fisheries Monitoring and Enforcement Unit
FTAs	Free Trade Areas
GCCA	Global Climate Change Alliance
GoU	Government of Uganda
GVC	Global Value Chain
HFCS	High Fructose Cassava Syrup
HQCF	High Quality Cassava Flour
ICT	Information, Communication and Technology

IFAD	International Fund for Agricultural Development
IGC	International Growth Centre
ISIC	International Standard Industrial Classification
LDC	Least Developed Countries
LMB	Lint Marketing Board
LoGs	Local Governments
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MAFAP	Monitoring African Food and Agricultural Policies
MDAs	Ministries, Departments and Agencies
MDIs	Micro Deposit Institutions
MoFPED	Ministry of Finance, Planning and Economic Development
MoGLSD	Ministry of Gender, Labour and Social Development
MoLHUD	Ministry of Lands, Housing and Urban Development
MoWE	Ministry of Water and Environment
MSCL	Microfinance Support Centre Limited
MSMEs	Micro, Small and Medium Enterprise
MSMIs	Micro, Small and Medium Industries
MTIC	Ministry of Trade, Industry and Cooperative
MVA	Manufacturing Value Added
NAADS	National Agricultural Advisory Services
NaCORI	National Coffee Research Institute
NaCRRI	National Crops Resources Research Institute
NaFIRRI	National Fisheries Resources Research Institute
NARL	National Agricultural Research Laboratories
NaSARRI	National Semi-Arid Resources Research Institute
NaLIRRI	National Livestock Resources Research Institute
NAGRIC&DB	National Genetic Resource Information Centre and Data Bank
NARO	National Agriculture Research Organisation
NARS	National Agriculture Research Systems
NDP	National Development Plan
NEDS	National Export Development Strategy
NPA	National Planning Authority
NRM	National Resistance Movement
NTB	Non-trade Barriers
NUCAFE	National Union of Coffee Agribusinesses and Farm Enterprises
NUMA	Northern Uganda Manufacturers Association
ODA	Overseas Development Assistance
OECD	Organisation for Economic Co-operation and Development
OPM	Office of the Prime Minister
OPUL	Oil Palm Uganda Limited
OWC	Operation Wealth Creation
PIBID	Presidential Initiative on Banana Industrial Development
PMA	Plan for Modernisation of Agriculture
PMB	Produce Marketing Board
PPP	Public Private Partnership

PPPP	Public Private Producer Partnership
PSFU	Private Sector Foundation Uganda
PVoC	Pre-export Verification of Conformity
R&D	Research and Development
SACCO	Savings and Credit Cooperative Organisation
SDGs	Sustainable Development Goals
SEATINI	Southern and Eastern Trade Information and Negotiations Institute
SGR	Standard Gauge Railway
SPS	Sanitary and phytosanitary
STEPMAN	Strategic Economic Policy and Management
TGCU	The Grain Council of Uganda
TEXDA	Textile Development Agency
UAE	United Arab Emirates
UCEL	Uganda Commodity Exchange Limited
UDB	Uganda Development Bank
UDC	Uganda Development Corporation
UCDA	Uganda Coffee Development Authority
UEB	Uganda Electricity Board
UFZA	Uganda Free Zones Authority
UK	United Kingdom
UGC	Uganda Grain Council
UGCEA	Uganda Ginners Cotton Exporters Association
UGX	Uganda Shilling
UIA	Uganda Investment Authority
UIS	Uganda Industrial Policy
UMA	Uganda Manufacturers' Association
UMPCU	Uganda Meat Producers Cooperative Union
UNAFFE	Uganda National Farmers Federation
UNBS	Uganda National Bureau of Standards
UNCST	Uganda National Council for Science and Technology
UNECA	United Nations Economic Commission for Africa
UNHS	Uganda National Household Survey
UNIDO	United Nations Industrial Development Organisation
UNPS	Uganda National Panel Survey
UPDF	Uganda Peoples Defence Force
URA	Uganda Revenue Authority
USA	United States of America
USD	United States Dollars
USSIA	Uganda Small Scale Industries Association
VAT	Value Added Tax
YLP	Youth Livelihood Project
YCVF	Youth Capital Venture Fund
WBA	Wet Bugisu Arabica
WRS	Warehouse Receipt Systems
WTO	World Trade Organisation
WUGARs	Wet ungraded Uganda Arabicas

EXECUTIVE SUMMARY

This report presents a case for what government must do to attain a transformative Agro-ind agenda through linking agriculture with Agro-manufacturing industries. It proposes a model which manufacturers as drivers in the expansion of the production base for agricultural raw materials and of value chains in selected nine commodities that meet the market requirements. These commodi out of the 15 broad priorities outlined in the Agriculture Sector Strategic Plan (ASSP) 2015/16-2019 also proposes a program based approach in the planning and implementation of the Agro-industria in Uganda.

The benefits of a transformed agricultural sector linked to industry are immense. They include, but to, the following:

a) Adoption of better production technologies (such as irrigation, fertilisers, improved seed, m and the use of drones to monitor crop pests and diseases) to improve productivity;
b) Increasing the supply and reliability of agricultural raw materials for the Agro-Manufacturing i
c) Creating off-farm employment opportunities for citizens;
d) Expanding the export and domestic revenue bases of the country; and
e) Creating necessary preconditions for Uganda's structural transformation into a high va manufacturing economy.

Why does Uganda need to Agro-Industrialise?

Uganda's long-term goal, as outlined in the Vision 2040, is to industrialise and transform the str economy by 2040. Given the dominance of agriculture as a source of livelihood, AGI offers a grea the country to embark on its long-term aspiration of transitioning into a modern industrial economy the potential to promote inclusive and equitable growth, especially in rural areas, as well as closing disparities. Second, Uganda has a positive trade balance for agro-industrial products (valued at US 2016). This can be improved by tapping into the growing local market of agro-manufactured produ replacement), and by fully exploiting opportunities available in international markets (export promot presents an opportunity for the country to tap into the market opportunities that arise from urban annualised growth rate of 5.4 percent) and a growing middle class that demands higher value-added products. Fourth, Uganda should Agro-Industrialise to address the high post-harvest losses which 20 to 40 percent of production at crop level. Finally, the backward and forward linkages between agro-industries will help Uganda to upgrade agro-value chains and create employment for its citizen

Agro-industry outlook

The Report recognises that there are several government initiatives supportive of the AGI agenda initiatives include:

a) Support to the production base through input subsidies (for example, coffee seedlings, oil under the National Agricultural Advisory Services (NAADS)/Operation Wealth Creation (OWC
b) Risk mitigation measures (such as increased public investment in irrigation and piloting of Agricultural Insurance Scheme);
c) Support toward value addition such as:
   - BIDCO Uganda Limited (for oil palm);
   - The Presidential Initiative on Banana Industrial Development (PIBID);

- and Soroti Fruit Factory;
- Nakaseke Tomato processing plant;
- Kisoro Potato Processing Industries (KPPIL); and
- Egypt-Uganda Food Security Company Limited (for beef processing).

d) Agricultural credit facility under Bank of Uganda to support processing and marketing;
e) Financial support to Research and Development (R&D) through national research institutions
f) Construction of subnational and local markets.

Notwithstanding these initiatives, Uganda's AGI agenda has several shortfalls. The most pressin following:

i) **Broad and non-transformative priorities:** Uganda's AGI agenda lacks prioritisation within the man 'priority commodities. Most of the initiatives are poorly coordinated, unsustainable and have proved non-transformative thus far.

ii) **Weak and uncoordinated institutions:** Agro-industry cuts across the mandates of several Ministrie Departments and Agencies (MDAs) each with its own policies, laws, and regulations. Legal fr sometimes overlapping and uncoordinated which makes the harmonised implementation of th by these numerous MDAs difficult. Furthermore, response to institutional failures has been th parallel institutions, with detrimental budget implications.

iii) **Weak and unsustainable production base:** The agricultural production base is driven by fragmente small-scale farmers who are not adequately supported by services (extension, R&D, innovatio irrigation and infrastructure) to sustain Agro-Manufacturing industries. Overtime, this has decline in productivity.

iv) **Non-transformative agro manufacturing industries:** Agro-Manufacturing industries are constrained at two fronts – a weak production base to sustainably supply raw materials, and an unfavoural operating environment such as high cost of electricity, quality of electricity, cost of capital, an These have inhibited growth with Agro-Manufacturing industries remaining stunted and ope installed capacities.

v) **Limitations in taking advantage of the domestic and international markets:** Uganda has failed to exploit the domestic market and, as such, the country imports substantial amounts of agr products that can otherwise be produced locally. This is in part due to an unfavourable policy that focuses on international markets. On the other hand, Uganda has signed several trade (multilateral, regional, and bilateral) but is yet to fully exploit the available opportunities that the offer.

vi) **Uncoordinated and unsustainable development financing to spur agro-industry:** Finance is a key support service required at all levels of the agro-industry value chain. Considering the su development finance, public funding for agro-industry remains inadequate, uncoordinated on non-transformative AGI activities. Another key source of development funding is through partners. However, this is increasingly being channelled through projects rather than progran

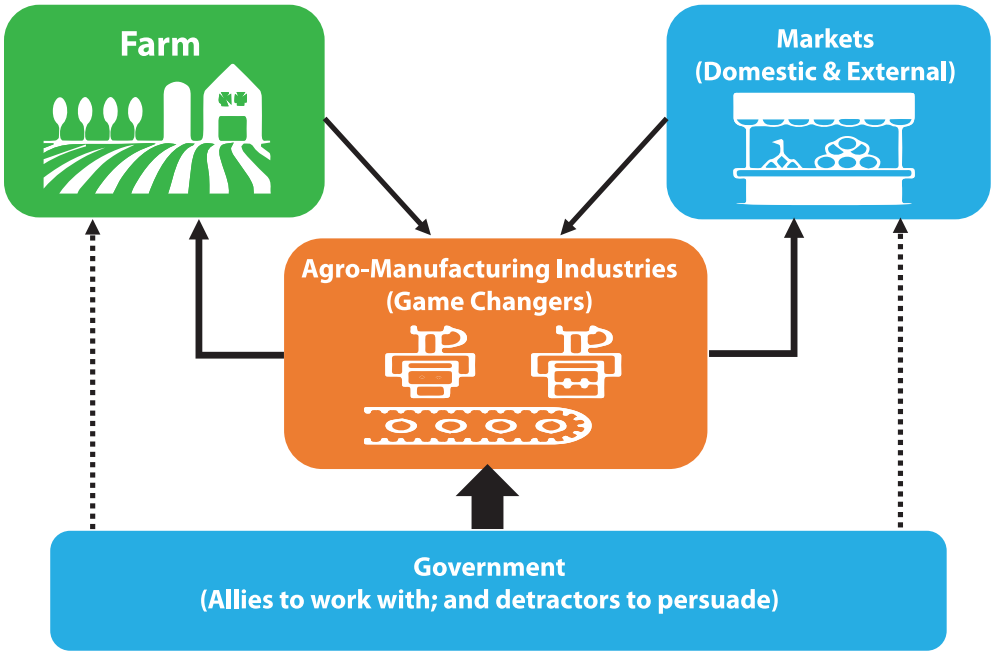
Policy actions for a sustainable and transformative AGI agenda

The Report proposes four interrelated action points to foster a transformative and sustainable AGI p Each of these actions are discussed briefly below:

a) **An Integrated Model:** The Report identifies an integrated model as the best approach for re-organ production systems for agro-industry as illustrated in Figure A.1. This model identifies Agro-M industries, especially high-end manufacturers, as game changers with government playing a

role in the provision of public services such as R&D and extension services but guided requirements. In addition, the high end manufacturers should build competitiveness through to meet both domestic and global markets.

Figure AP1: Proposed integrated model for agro-industry



b) **Program approach to AGI:** A program-based approach should be adopted if Uganda is to achie AGI agenda on a sustainable basis. The program should sequence priorities in the short-to-medium term with an integrated planning and budget approach. Given the initial condition under the agro-industry outlook, the program should be spearheaded by a strong and comm committee, preferably chaired by MoFPED. The committee should have clear and measurab targets.

c) **Institutional framework:** There is need to rethink the current institutional framework, especially th of government. In particular, the government has to take on a developmental state role to ens coordination and financing of actors. Furthermore, the government has to regulate the activ Manufacturing industries to ensure support of inclusive growth. This can be attained through contractual arrangements, commodity exchange systems, and warehouse receipt system. In governments have to play a critical role in ensuring availability of the necessary services at th level and monitoring the performance of farmers. For example, tractors for hire can be plac country level. Finally, the government has to retain the role of providing training and extensio well as promotion of agricultural research and development.

d) **Government's role to go beyond an enabling environment:** Uganda, as a late industrial developer, must carefully use strategic state guidance to induce wealth creation. This is particularly true for value-added manufacturing, which is difficult but necessary as a precondition for structural economic tran Thus, strategic State guidance must go beyond just ensuring an enabling environment to acti sustainable AGI agenda.

1. INTRODUCTION

Uganda's industrialisation agenda has been unimpressive despite the political support given to the i
right from the years of colonial rule in the post-World War II era to the first decade of independenc
Historically, the British colonial administration mapped out Uganda's industrial towns based on cli
considerations. The colonial State built the Uganda Railway to extract minerals and more industrial
the coast for export to industries in the United Kingdom (UK). In essence, Jinja was chosen as Uga
town due to its connectivity to borders and strategic infrastructure (such as electricity). The historic
highlights linkages between the raw material base, marginal processing activities and markets; and t
were relatively efficient. The economy bequeathed by the colonial State to Uganda had some str
– particularly Uganda Development Corporation (UDC) and Uganda Electricity Board (UEB). Nor
predominantly an agrarian economy, without 'successful' industries.

Since 1972, Uganda has struggled with attaining a transformative industrial development agenda. Oskenso et al(2014) argue that many factors have changed. Jinja town as the main agricultural led industrial development has since been replaced by Kampala with little policy guidance. Uganda has also shifted from a centralised system of government to a decentralised one – which is not supportive of organised productive systems.[1]

Uganda launched its Vision 2040 and the second National Development Plans (I and II) prioritising industrialisation as a key result focus to transform the economy. On the policy front, Uganda's industrial development agenda was articulated in the Uganda Industrialisation Policy and Framework, 1991 which, like the Uganda Investment Statute of 1991, placed emphasis on agro-processing rather than manufacturing as the main industrial priority for the country. Since then no tangible fruits of industrialisation linked to agricultural transformation have been attained.

From colonial times, Uganda has had four distinctive industrialisation episodes, namely: (a) The phase of developmental state-building: Governor Cohen to Obote I (1962-1971); (b) the Idi Amin phase of the 'economic war' (that witnessed the expulsion of Asians) and industrial stagnation (1971-1980); (c) the phase of pro-market structural adjustment programmes (SAPs) (1980 – 1997) and (d) the current phase which Kiiza (2012) refers to as 'new developmentalism' characterised by planning the new wine of State activism into the old wineskins of economic liberalism.

Efforts to link agriculture to industry have been made through several interventions both by Government of Uganda (GoU) and non-state actors since 1986. Initiatives have ranged from ensuring a good business environment through sustained peace and security, policy incentives; signing global, continental and regional trade agreements to ensure markets; access to credit; public investments in infrastructure, extension services and research and development (R&D), to public-private partnerships in setting up agro-industries, among others. Development Partners continue to support these government initiatives either through budget support or project budget support. There are also other interventions driven by private sector and other non-state actors.

In the 1980s, and more seriously in the 1990s, Uganda also adopted policies of extensive economic liberalisation and less involvement of the State as a business partner in running the economy. The 'pro-market' policies resulted in the institutionalisation of a conservative model of economic governance and industrial development but this in turn led to the failure of industrialisation to take off.

Notwithstanding the above initiatives, Uganda is yet to achieve tangible industrialisation. It is apparent that the initiatives as articulated in the ruling National Resistance Movement (NRM) Manifesto (2016) are intended to see the economy industrialise. However, connecting the

1 Most government programmes are implemented at this level with limited capabilities and competencies at Local Government levels; and coordinated planning. To some extent this frustrates investment at this level.

dots at all levels (policy, budget and systemic structural issues) remains a challenge.

Historical evidence shows that effective and successful industrialisation is attained through, not despite, non-compliance. Latecomers have invariably succeeded by defying, not complying with, comparative advantages (Chang, 2002; Kiiza, 2007). For example, the United States of America (USA) which attained industrialised nation-status after Britain's Industrial Revolution defied the political economy wisdom of Adam Smith and David Ricardo. Germany and Japan which came after the USA, Korea, Taiwan-China and Mainland China which came after Japan all succeeded by defying the scepticism of more industrialised nation-states, which typically claimed that latecomer industrialisation had no chance of success. The claim was that latecomers would promote economic inefficiencies if they defied the existing natural advantages in favour of politically constructed competitive advantages privileging state-coordinated industrial transformation over the luxury of market fundamentalism (ibid).

This Agro-industrialisation (AGI) Report, therefore, positions industrialisation in a broader context of achieving Uganda's development vision. The central argument is that Uganda's transformative AGI agenda is unlikely to be unlocked unless the country adopts focused policies, budgets and sectoral implementation plans, covering fewer fundable commodities – coffee, tea, maize, cassava, cotton, oil palm, fish, beef, and dairy.

The Report argues that Uganda's chances of achieving transformative AGI will be postponed to an uncertain future unless the country revisits its policy of full economic liberalisation. In addition, Sustainable Development Goal (SDG) 9, calls for infrastructure development, industrialisation and innovation.[2] Today's agrarian economies (such as Uganda) that are struggling to industrialize must therefore invoke SDG 9 to reclaim the industrial policy space that has suffered erosion under neoliberal globalisation and the associated Free-Trade Agreements (FTAs) and the Bilateral Trade Agreements (BATs).

This Report comes at a time when GoU is seeking for avenues to invest its scarce resources wisely in terms of identifying opportunities with optimal impact and reduced risk. The aim is to drive a transformative AGI agenda. The Report proposes what government must do to usher in the transformative industrialisation agenda that is linked with agriculture (as it is still a dominant sector), with the capacity to take advantage of emerging and growing trade opportunities in the domestic, regional and global markets; and

The Report thus:

- Examines the extent to which the current global, continental and regional environment as well as the domestic policy, legal and institutional frameworks support AGI in Uganda;
- Examines what needs to be done to sustainably expand the agriculture production base to ensure steady supply of raw materials (of the right variety, quality and quantity) for agro-industrial manufacturing;
- Analyses how the capacities and capabilities of the Agro-Manufacturing industries can be enhanced to leverage on trade opportunities of high value agro-industrial products in the domestic and international markets; and
- Identifies high potential agricultural commodities where investment in value addition is likely to leverage on untapped trade opportunities both in the domestic and international markets.

The strength of the Report lies in its consideration of the entire agro-industry value chain. It proposes that Government shifts away from a generic list of priorities to a new set of strategic, specific, and fundable priorities. Furthermore, the Report proposes a model which anchors agro-manufacturers as drivers in expanding of the production base for agricultural raw materials and the upgrading of value chains in selected commodities that meet the market requirements. The Report also makes a case for a program-based approach to AGI and calls for strategic State-guidance of Agro-industrialisation in the short- and medium-terms until the market-based manufacturing enterprises develop their competitiveness.

2 The other SDG is No. 12 on "Ensuring sustainable consumption and production patterns" that yield less carbon print on both national and global economy.

1.1 Macroeconomic and industrial experience insights

Uganda has achieved macroeconomic stability characterised by single digit annual inflation rates and stable exchange rates due to a sound financial sector with a stable and fully convertible currency – though some would argue that the soundness of the financial sector has not been transformative in terms of creation of jobs, among others. The economy is fully liberalised and open to foreign investment, with no restrictions on remittances of dividends. There are also no restrictions on sectors, and foreign investors are allowed to invest in an economic activity with 100 percent foreign ownership, which allows full repatriation of profits. In addition, Uganda operates an open capital account, and exchange rate is freely determined by the market.

Despite the sound macroeconomic environment, Uganda's economic growth has not created enough jobs for its burgeoning labour force. While the economy grew at 4.5 percent in 2016/17, largely driven by services, the services sector contributed less than 15 percent of the total employment. In contrast, the agricultural sector that employs nearly 77 percent of the rural population grew at 2.2 percent (UBoS, 2016). The performance of the agricultural sector has direct implications for the performance of the industry sector and in particular the manufacturing sub-sector. This is due to the fact that nearly 60 percent of Uganda's manufacturing is food and beverage processing. Industrialisation through agriculture would thus facilitate the rate of poverty reduction in Uganda – given the strong relation between income poverty reduction and the performance of the agricultural sector.[3]

While the current interventions have led to reduction in income poverty, this is yet to translate into wealth creation. The proportion of Ugandans living below the income poverty line decreased from 56 percent in 1992/93 to 19.7 percent in 2012/13 but increased to 21.4 percent in 2016/17. There are growing concerns of persistent inequalities in the distribution of incomes with a Gini coefficient of 0.395 in 2012/13 to 0.417 in 2016/17 (various Uganda National Household Surveys UBoS).

3 Appleton and Ssewanyana (2004).

With regard to industry, historical evidence shows that no country has ever succeeded by embracing a generi list of agro-industrial commodities (Chang, 2002), and successful countries have focused on few strategic commodities. For example, textiles manufacturing, which is a key component of agro-industry, was prioritized by Britain, France, Japan, and China in their early stages of development due to the backward–forward linkages between cotton growing and textile manufacturing. In fact, the British Industrial Revolution was based on textile manufacturing backed by improvements in development infrastructure (canals, roads, railways), energy and State capacity.

1.2 Why Agro-industrialisation?

Evidence shows that no region of the world has ever move to industrialised economy status without transformation of the agricultural sector (Adesina, 2017). Fatah (2007) suggests that agro-industry is key in pursuing the goals of growth promotion and income equality. Hence Uganda's heavy reliance on agriculture simply implies that for inclusive industrialisation, employment creation and wealth enhancement to be achieved, transformative manufacturing that builds on the agricultural sector is essential. To achieve transformation, investments in modern farm inputs and production systems must occur to boost sustainable agro-supply chains for industry.

Uganda's long-term vision is to transform the country into a modern industrial economy by 2040 (GoU 2013). As mentioned earlier, GoU has demonstrated political commitment to agro-industrial development as articulated in the 2016-2020 NRM manifesto. The alignment of the ruling Party's philosophy is visible in maintaining in 2017/18 and 2018/19 the Annual Budget theme of: 'Industrialisation for Job Creation and Shared Prosperity'. Focus has been placed on adding value to both agricultural and mineral raw materials in order to increase exports of high value products. However, there is need to move beyond exports to a focus on import replacement given the growing middle class and rising levels of urbanisation at both the national and regional levels.

Uganda has also not achieved the required structural transformation where labour is expected to move from

low-productivity into higher productivity employment and agriculture will remain the biggest employer in the short- and medium-term. Without employing a significant proportion of the labour force in transformative manufacturing activities, few countries have been able to escape poverty (Newman et al 2018).

It must be emphasised that Uganda's annual urbanisation rate (5.4 percent in 2016)[4] is growing faster than its population growth rate (3.0 percent). Specifically, the share of the population in urban areas stood at 24.3 percent in 2017 and is projected to grow to more than 40 percent in 2050.[5] Increasing urbanisation, not only in Uganda but regionally, will increase the demand for agro-industrial products such as processed foods, starch for pharmaceutical industries and bio-fuels. Given that rising urbanisation is bound to happen world-wide, markets for agro-industrial products will expand. Backward and forward linkages will also necessitate that Uganda sustainably transforms agro-value chains to ensure sufficient supplies for domestic industries to undertake transformative manufacturing while creating jobs for its citizens. Therefore, AGI is the best strategy for Uganda to industrialise.

While evidence shows that urbanisation is closely linked to industrialisation, the link is not depicted in developing countries where urbanisation has taken place without meaningful industrialisation (IGC, 2016). Nonetheless, sustainable industrialisation is likely to lead to meaningful urbanisation in Uganda where the middle class is growing and consumption patterns are shifting towards packaged/processed industrial products. Under the right policy framework anchored in national development planning, African countries can leverage the momentum of urbanisation to accelerate industrialisation for a more prosperous and equitable future (UNECA, 2017).

It follows, therefore, that growing and promising agro-industrial value chains requires sustainable production of high quality raw materials to support Agro-Manufacturing capable of producing quality products that can penetrate the highly competitive regional and international markets. In the short to medium term, Government should have a deliberate agenda to have AGI as a program for overall socio-economic transformation, as this will lead to poverty reduction, increased macro-economic performance, sustainable employment creation and food security.

1.3 Structure of the Report

Besides this introduction, the Report has seven Chapters. Chapter 2 presents a brief conceptualisation of Agro-industrialisation. It also outlines the analytical framework that guides Uganda's AGI agenda. Chapter 3 examines the adequacy of the current enabling environment to spur Agro-industrialisation in Uganda. The discussion on the enabling environment includes review of a set of policies and legal frameworks, institutions, and political agenda of the ruling NRM Party that collectively improve or create an environment for a sustainable AGI. The Chapter highlights the opportunities and areas that need further attention to generate a common understanding and expectations among the relevant stakeholders.

Chapter 4 analyses what needs to be done to unlock the agro-production base to sustainably supply raw materials for industry. It delves into the critical enablers that need urgent attention, and calls for re-organisation of production systems for industry. Chapter 5, discusses the current capacities and capabilities of Uganda's Agro-Manufacturing industries and the critical enablers that need attention beyond provision of an enabling macro-economic environment.

Chapter 6 focuses on market access for agro-industrial products. The discussion centres around the untapped potential and opportunities in the domestic and international markets. Chapter 7 highlights financing as one of the binding constraints facing agro-industry players at all levels. And, finally, Chapter 8 concludes with proposed policy actions.

4 According to the UNHS (various surveys), roughly 12.4 percent of Uganda was urbanised in 1992/93, a rate that doubled to 24.3 percent in 2016/17 while the population growth rate has remained steadily at 3.0 percent per annum (still high).

5 World Urbanisation Prospects 2018.

2. CONCEPTUALISATION OF AGRO-INDUSTRIALISATION

Understanding what Agro-industrialisation entails is key to proper planning and implementation. In t
put into context the defining differences between agro-industry, agro-processing and agri-business,
analytical framework that can guide a systematic approach to Agro-industrialisation in Uganda. Th
on agriculture per se, nor does it rule out the need for continuing to promote activities that ensure food se
it argues for an agenda of transformative industrialisation through agriculture.

2.1 What is Agro-industry?

The literature on agro-industries is characterised by one distinctive flaw: the tendency to present and/or utilise a generic conceptualisation of agro-industries. The most basic definition looks at agro-industry as that part of the economy that deals with farming. This implies that all farming activities, at small or large scale, with or without intensive use of modern agro-technologies, in the formal or informal sector and whether farmers produce for subsistence or for the market, qualify as agro-industrial activities.

Agro-industry is an inclusive term for all 'postharvest activities involved in the transformation, preservation and preparation of agricultural production for intermediary or final consumption…' (Wilkinson and Rocha, 2009:46). The problem with this conceptualisation is that industrial 'transformation' is mentioned, but is not consistently used in the empirical analysis. Instead, emphasis is placed on the low value-added agro-processing activities. Agro-processing is nevertheless defined generically as 'a broad area of postharvest activities, comprising artisanal, minimally processed and packaged agricultural raw materials, the industrial and technology-intensive processing of intermediate goods, and the fabrication of final products derived from agriculture' (ibid). These authors concede that 'The hybrid characteristics and heterogeneous features of the agro-processing sector, ranging from the informal contract relations of poor rural communities to the complex, transnational activities of global players, suggest the need for caution when presenting an empirical overview.' In other words, empirical specification becomes difficult without greater conceptual specification.

The agri-business conceptual perspective is not helpful either. For one thing, it essentially looks at farming as a business - that is for the market. While this commercialised agriculture model is important for adopting an agri-entrepreneurship viewpoint (with a board spectrum of actors – such as the suppliers of credit and agro-inputs), it does not go far enough. da Silva et al (2009) conceptualise agro-industry from the perspective of value chains, supply chains and job creation. From this viewpoint, agro-industry is an inclusive term for both on-farm and off-farm activities. It includes direct farming as well as the 'handling, packaging, processing, transporting and marketing of food and agricultural products' (da Silva et al., 2009: 9).

Another challenge in the literature is the tendency to confuse agro-processing (defined as low value-added industrial activities) with manufacturing, which, by definition, involves substantial transformation of raw materials into finished products. Henson and Cranfield (2009), for example, define the agro-industrial sector as 'the subset of the manufacturing sector that processes raw materials and intermediate products derived from agriculture, fisheries and forestry. For them, the agro-industrial sector includes 'manufacturers of food, beverages and tobacco, textiles and clothing, wood products and furniture, paper, paper products and printing, and rubber and rubber products' (Henson and Cranfield, 2009:11). However, this viewpoint has one ke shortfall, the dominant subsector within manufacturing is the low-value added 'food and beverages' subsecto which cannot propel a country's manufacturing competitiveness.

The most comprehensive definition of agro-industry is as made by Reardon and Barrett (2000) who defined Agro-industrialisation to comprise three main areas:

(i) Agro-processing, distribution, provision of farm inputs, and off-farm activities;

(ii) Institutional and organisational coordination between agro-processing firms and farms; and

(iii) Management of parallel changes in the farm sector, such as changes in product composition, technology, and sectoral market structures.

This report adopts the above definition. In short, it sees Agro-industrialisation as building an industry based on agricultural raw materials from production and marketing, through manufacturing to distribution to both domestic and international markets.

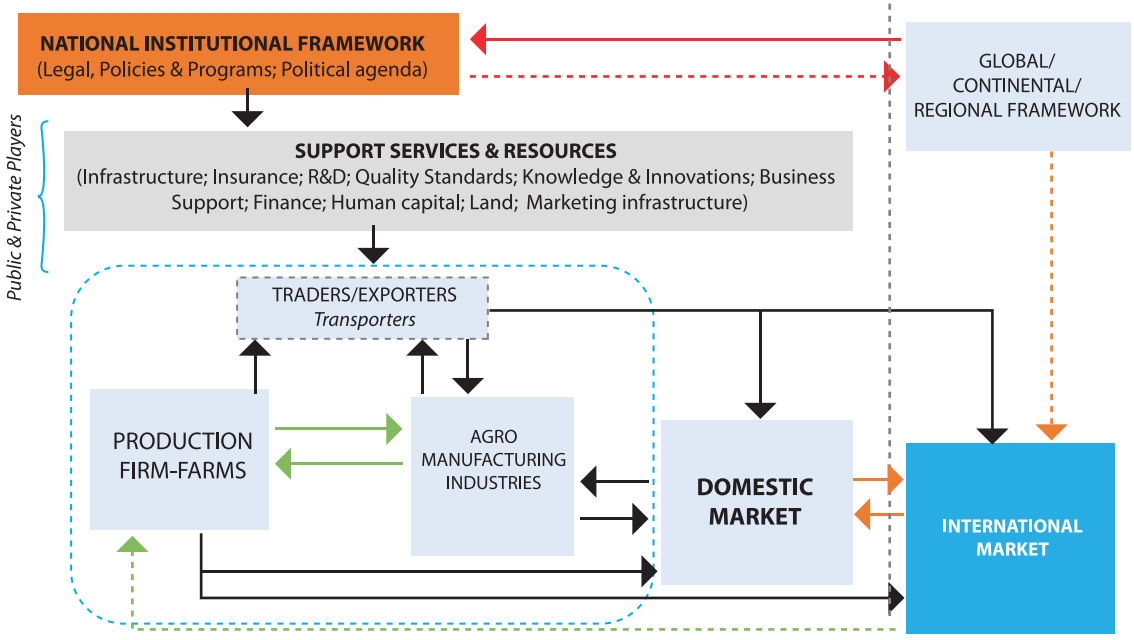
2.2 Analytical Framework

Building on the above definitions of agro-industry, this Report conceptualises the mechanism through which Uganda can deliver a sustainable AGI agenda. Figure 1 illustrates how different players/systems interact to deliver AGI. Specifically, the framework suggests that, to sustain AGI there is need to pay attention to both national and external factors and how their interactions could boost or hinder AGI.

Conceptually, an Agro-industrialisation agenda requires a national institutional framework that provides an enabling business environment that is cognisant of contemporary global, continental and regional dynamics (Figure 1). Specifically, the institutional framework includes the legal, policy and political agendas of Government. With institutions in place that respond to changing environment, and that are well funded and with clear horizontal and vertical linkages along the entire chain, for AGI to be realised. The effectiveness of institutions is attained through adequate provision of support services and resources by both public and private players. The supportive resources include: finance, infrastructure and land; while the supportive services include insurance, R&D, quality assurance and standards, knowledge and innovations, and business support, among others.

Figure 1 also depicts three major components of agro-industry, namely primary production, industrial manufacturing and market access (domestic and international). The right coordination, backward and forward linkages, between these components is essential. However, their functionality depends on the forces set at the national level and the kind of support services and resources provided therein. The international market is, on the other hand, affected directly through the global dynamics. For instance, penetrating such markets requires adherence to standards and trade requirements set in trade agreements that Uganda endorsed- e.g. through the World Trade Organisation (WTO), Free Trade Agreements (FTAs), and Bilateral Trade Treaties (BATs).

Figure **Analytical framework for Agro-industrialisation**



Source: Author's own conceptualisation of agro-industry.

2.3 Report Approach

From the analytical framework, the Report traces and analyses the five segments –institutions, services and resources, production, manufacturing and markets- through which AGI must be fostered and sustained. To achieve this, the Report first reviews relevant literature and provides a critique of government documents - policies, laws, strategies and institutional set-up. The aim was to assess whether the current national institutional framework can enhance a transformative AGI agenda for Uganda.

Second, the Report critically examines the status-quo and commodity production targets set by the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF). It identifies production and Agro-Manufacturing gaps that must be closed for transformative value addition to be attained. The information used were drawn mainly from Government policy documents; various National Household Surveys conducted by the Uganda Bureau of Statistics (UBoS); the World Bank Enterprise Survey of 2013/14; and administrative data from Bank of Uganda (BoU); and relevant ministries, departments and agencies (MDAs). The market analysis focuses on the current markets, untapped market potential, and what Uganda needs to do differently to tap into such opportunities. The data for this aspect were drawn mainly from the international trade databases of TradeMap, COMTRADE and UNIDO.

Third, the Report examines the issue of development financing for AGI. Financing is critical in Uganda's efforts to sustainably expand the production base, the manufacturing capacities, and to increase the competitiveness of Uganda's agro-industrial products both domestically and internationally.

Fourth, a case study approach based on nine selected strategic industries was employed to demonstrate the dynamics around Uganda's agro-industry, and to illustrate the interactions between the major components of agro-industry.

Some of the selected industries received extensive support from Government in form of policy incentives. For instance, the palm oil industry received a lot of Government support through tax holidays, credit and lan subsidies. This case study presents vital information needed for understanding the model for supporting forward and backward linkages between agriculture and industry. The beef industry has also benefited from such policy incentives but with minimal impact. This, too, needs to be understood. At the same time, the dair industry deserves attention because it is deemed to be one of the success stories with steady increases in milk production and value addition with a broadened produc space. Here, consultations with key actors including industrialists, R&D institutions, policymakers and others were made.

Fifth, qualitative methods were employed to complemen the above analyses. A stakeholder mapping exercise was undertaken to identify the key players by the kinds of support services and resources (see Figure 1) they provide for the production, manufacturing, and marketing segments. This exercise allowed participants to deliberate on what needs to be done if Uganda is to realise transformative Agro-industrialisation. Key informant interviews were also used to augment the above analyses by engaging with key policy makers private sector players and Development Partners (DPs) Lastly, validation meetings were held with the lead ministries (MAAIF and MTIC), Ministry of Finance, Planning and Economic Development (MoFPED) To Policy Management, Top Technical Management an Directorate of Economic Affairs, Private Sector, R&D institutions, industry-specific agencies, Uganda Nationa Farmers Federation (UNFFE), Uganda Cooperativ Alliance, Uganda Grain Council (UGC) and other releva stakeholders. Further consultations were made focusin on programming for public investment for agro-industry (PIMA). The PIMA consultations drew participation from MoFPED, MAAIF, MTIC, Operation Wealth Creat (OWC), Private Sector Foundation Uganda (PSFU), Off of the Prime Minister (OPM), Uganda Development Corporation (UDC), R&D institutions and commodity-specific agencies, among others.

2.4 Scope of the Report

For agro-industry to work, there is need to shift from the generic approach to a 'few game-changers with GoU starting small and picking lessons for future agro-

industries. Accordingly, this Report argues that not all priority commodities as articulated in the Agricultural Sector Strategic Plan (ASSP) should immediately qualify for agro-industrial development at ago. Otherwise, the current generic approach to AGI will become a recipe for developmental failure, not economic transformation.

The Report identifies nine high potential and strategic agro enterprises out of 15 priorities - coffee, fisheries, tea, cotton, cassava, vegetable oil, maize, dairy, and beef. The rationale for selecting the commodities stems from the evidence that coffee, tea and fisheries are vital in the strategic transformation of Uganda's exports in the short and medium term (see STEPMAN, 2017a) while cotton and vegetable oil are included by virtue of their high potential for import replacement (see STEPMAN, 2017b). There is also a sizeable domestic market for textile products and vegetable oils. Maize is selected as a food security crop as well as a tradable commodity within the region. Maize and cassava also have potential for bio-ethanol manufacturing and supplying starch to the high value-added pharmaceutical industry.

3. LEVERAGING UGANDA'S INSTITUTIONAL FRAMEWORKS FOR AGRO-INDUSTRIALISATION

In Uganda's push for Agro-industrialisation (AGI), effective national institutions are paramount transformative linkages between the raw material production base, manufacturing activities and the relevant institutional frameworks include national laws, regulations, policies, and political agendas party; as well as the bye-laws and organisational arrangements of local governments (LoGs) (see F

Through the stakeholders' mapping exercise[6], observed that agro-industry cuts across the mandates of several Ministries, Departments and Agencies (MDAs). It calls for effective and efficient coordination of different MDAs. For Uganda to realise its AGI aspirations, the key ministries– Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) and Ministry of Trade, Industry and Cooperatives (MTIC) – must work closely with the MoFPED; the Ministry of Lands, Housing and Urban Development (MoLHUD); Uganda Investment Authority (UIA); President's Office; State House; Office of the Prime Minister (OPM), Uganda Export Promotion Board (UEPB), and Local Governments (LoGs). This Chapter provides a critique of the initial conditions and what needs to be done differently to ensure that the institutional frameworks deliver Uganda's AGI agenda.

3.1 National Commitments

The **1995 Constitution of the Republic of Uganda** objective XI (ii) articulates that 'the state shall stimulate agricultural, industrial, technological and scientific development by adopting appropriate policies and enactment of enabling legislation'. The Constitution also states in its Sixth Schedule that industrial policy, agricultural policy, national research policy, regulation of trade and commerce, foreign relations and external trade, national standards, and control and management of epidemics and disasters are among the key functions and services for which Central Government and local governments are responsible. These commitments were translated into the Vision 2040 where Government of Uganda (GoU) pledges to restructure and optimise the industrial structure while establishing a modern industrial system that will give impetus to industrialisation' (p.17). Indeed, during the first seven years of implementation of the Vision, Government aimed to establish economic lifeline industries, among which, are agro-based industries.

Vision 2040 is operationalised through five-year National Development Plans. Currently the country is implementing the second National Development Plan (NDP II). The Plan emphasises commercialisation of agriculture to increase production and productivity along the value chains. Specifically, it emphasises investments in processing and marketing as launch pads to industrialisation. It further points to the untapped opportunities of agro-processing, including economic growth, promotion, employment creation and poverty reduction and NDP II calls for the development of value added industries in agriculture.

At a political level, the National Resistance Movement (NRM) Government, through its Manifesto (2016-2020) commits to enhancing value addition for traditional and non-traditional exports to increase export earnings through agro-processing and selective manufacturing. Based on the constitutional provisions, government policy and the political commitments of the ruling Party, AGI is not a new aspiration for GoU. Instead, it is the question of how these commitments could be translated into practice to make AGI work that forms the basis for this Report.

3.2 Legal and Policy Responses

Since the 2000's, GoU has put in place several institutional, regulatory and policy frameworks (presented in Figure 2) aimed at shaping an enabling environment for AGI to prosper. While this is a positive development, it has created a complex set of policy and regulatory overload for effective implementation. In total there are over 25 policies and over 20 Acts, developed separately to supposedly improve the investment

6 The Stakeholders' Mapping Meeting was held on March 03, 2018.

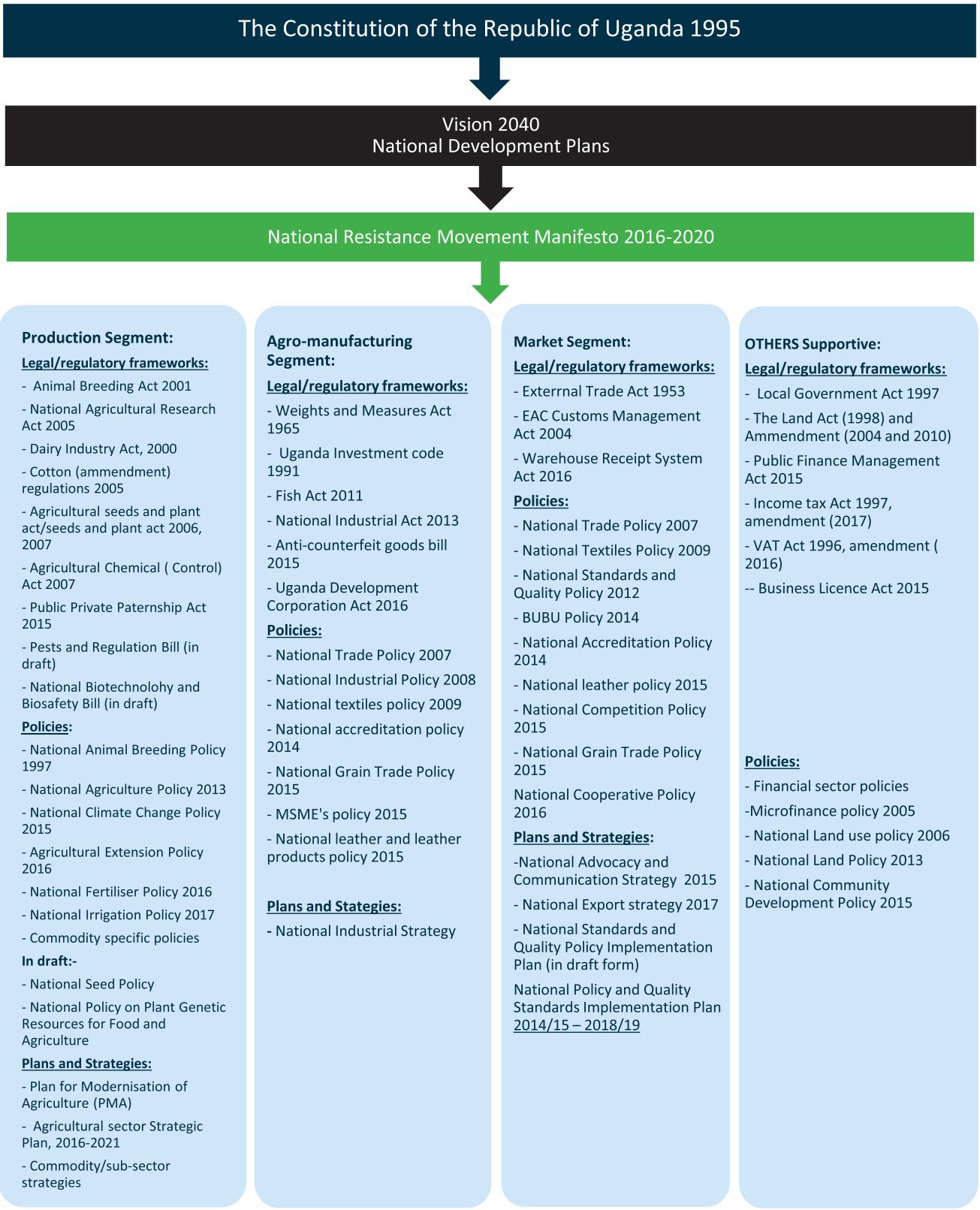
climate for private sector-led development. Particularly at the Stakeholders' mapping exercise alluded to the complexities involved in implementing a collective use of policies and Acts to achieve a given outcome, and there was unanimous call for consolidation for effective implementation, monitoring and learning to happen.

Another observation was the fact that these many policies and legal frameworks were yet to result in higher competitiveness of agro-industrial products in domestic and international markets (see Chapter 6).

A further interrogation of these policies reveals several gaps. First, some Acts are outdated (such as the Weights and Measures Act 1965 and the Anti-Counterfeit Goods Bill 2015), while others are incomplete (e.g. Pesticides; Fertiliser Regulations; Meat Regulations) or yet to be tabled before Parliament (e.g. proposed amendments to the investment code). Further to note, there are some key policies in place which are not backed by law to enforce compliance. For example, the 2013 National Agriculture Policy is not backed by any law, and this has complicated its full implementation and enforcement through different strategies and programmes. At the domestic level, enforcing quality standards in the coffee sector along the entire chain has partly failed due to the absence of an appropriate law. This in turn is affecting Uganda's competitiveness in the global market.

Second, there are several, fragmented but related policies implemented by different uncoordinated institutions. For example, at production level, agriculture is mainly guided by the National Agricultural Policy with several sub-sector policies (such as Extension Policy, National Fertiliser Policy) and other supportive policies under other MDAs (e.g. Water for Production under Ministry of Water and Environment (MoWE); and Land Policy and Land Use Policy under MoLHUD. At Agro-Manufacturing level, for instance, the objectives of the 2015 National Grain Trade Policy are quite close to those of the 2007 National Trade Policy, and having different and uncoordinated implementers is causing duty-bearers to pull in different directions.

Figure 2: Institutional, regulatory and policy framework for Agro-industrialisation


The Constitution of the Republic of Uganda 1995
Vision 2040
National Development Plans
National Resistance Movement Manifesto 2016-2020
Production Segment:
Legal/regulatory frameworks:
- Animal Breeding Act 2001
- National Agricultural Research Act 2005
- Dairy Industry Act, 2000
- Cotton (ammendment) regulations 2005
- Agricultural seeds and plant act/seeds and plant act 2006, 2007
- Agricultural Chemical (Control) Act 2007
- Public Private Paternship Act 2015
- Pests and Regulation Bill (in draft)
- National Biotechnolohy and Biosafety Bill (in draft)
Policies:
- National Animal Breeding Policy 1997
- National Agriculture Policy 2013
- National Climate Change Policy 2015
- Agricultural Extension Policy 2016
- National Fertiliser Policy 2016
- National Irrigation Policy 2017
- Commodity specific policies
In draft:-
- National Seed Policy
- National Policy on Plant Genetic Resources for Food and Agriculture
Plans and Strategies:
- Plan for Modernisation of Agriculture (PMA)
- Agricultural sector Strategic Plan, 2016-2021
- Commodity/sub-sector strategies
Agro-manufacturing Segment:
Legal/regulatory frameworks:
- Weights and Measures Act 1965
- Uganda Investment code 1991
- Fish Act 2011
- National Industrial Act 2013
- Anti-counterfeit goods bill 2015
- Uganda Development Corporation Act 2016
Policies:
- National Trade Policy 2007
- National Industrial Policy 2008
- National textiles policy 2009
- National accreditation policy 2014
- National Grain Trade Policy 2015
- MSME's policy 2015
- National leather and leather products policy 2015
Plans and Stategies:
- National Industrial Strategy
Market Segment:
Legal/regulatory frameworks:
- Exterrnal Trade Act 1953
- EAC Customs Management Act 2004
- Warehouse Receipt System Act 2016
Policies:
- National Trade Policy 2007
- National Textiles Policy 2009
- National Standards and Quality Policy 2012
- BUBU Policy 2014
- National Accreditation Policy 2014
- National leather policy 2015
- National Competition Policy 2015
- National Grain Trade Policy 2015
National Cooperative Policy 2016
Plans and Strategies:
-National Advocacy and Communication Strategy 2015
- National Export strategy 2017
- National Standards and Quality Policy Implementation Plan (in draft form)
National Policy and Quality Standards Implementation Plan 2014/15 – 2018/19
OTHERS Supportive:
Legal/regulatory frameworks:
- Local Government Act 1997
- The Land Act (1998) and Ammendment (2004 and 2010)
- Public Finance Management Act 2015
- Income tax Act 1997, amendment (2017)
- VAT Act 1996, amendment (2016)
-- Business Licence Act 2015
Policies:
- Financial sector policies
-Microfinance policy 2005
- National Land use policy 2006
- National Land Policy 2013
- National Community Development Policy 2015

Source: Author's compilation based on review of several public documents.

Third, there is no consistency in sticking to the legal mandate and roles of those agencies that were established by Acts of Parliament. The situation is exacerbated by policy reversals that are rarely informed by policy evaluation and learning but more by political pronouncements. The policy reversal on extension service delivery system illustrates this point. The 2001 Act that put in place the National Agricultural Advisory Services (NAADS) with statutory mandate on advisory services was never repealed by Parliament at the time of transferring all the roles of extension back to the MAAIF under the Single Spine Extension System. In addition, the changing roles of NAADS from what were enacted (e.g. procurement and distribution of seeds, seedling procurement) to what not enacted to be made part of its legal mandate.

Fourth, some policies do not have costed plans and funds for effective implementation, and where they exist, are oftentimes not aligned to the NDP II (NPA, 2018).

Fifth, there are also duplications across the existing strategies. For instance, both the National Export Promotion Strategy and the Uganda Industrial Strategy in the context of agro-industry are designed to promote Uganda's exports. Yet they have separate budget lines, separate offices, and separate employees all of which must be paid using tax payers' money. In addition, out of the 15 crop specific export strategies planned for development since 2008 – covering crops such as coffee, tea, cotton, livestock among others value chains – only the Coffee Export Strategy was drafted in 2012, leaving the rest of the value chains with no sense of direction.[7]

3.3 Institutional Arrangements

Effectiveness of policies and laws in place is exhibited by the performance of implementing institutions that a country has. This section provides a critique of the current institutional arrangements and what needs to be done to effectively support the AGI drive. It is important to point out that most MDAs are built on foundations of enactment of laws by Parliament with clear mandates.

While there are several MDAs supporting the AGI drive the two key institutions are MAAIF and MTIC. MAAIF responsible for production and productivity, while agro manufacturing/value addition and marketing are shared responsibilities of MAAIF and MTIC. However, there is need to streamline and strengthen the coordination at ministerial levels, which is considered to be weak.

Since the early 2000s, Uganda has witnessed the creation of multiple and parallel institutions within these two leading institutions and other relevant ministries to support the various processes along the AGI value chains (see Figure 3). To a great extent, this has resulted in the duplication of mandates and roles. This creates a dual functionality problem around coordination and in turn constrains implementation and results in wastage of public funds.

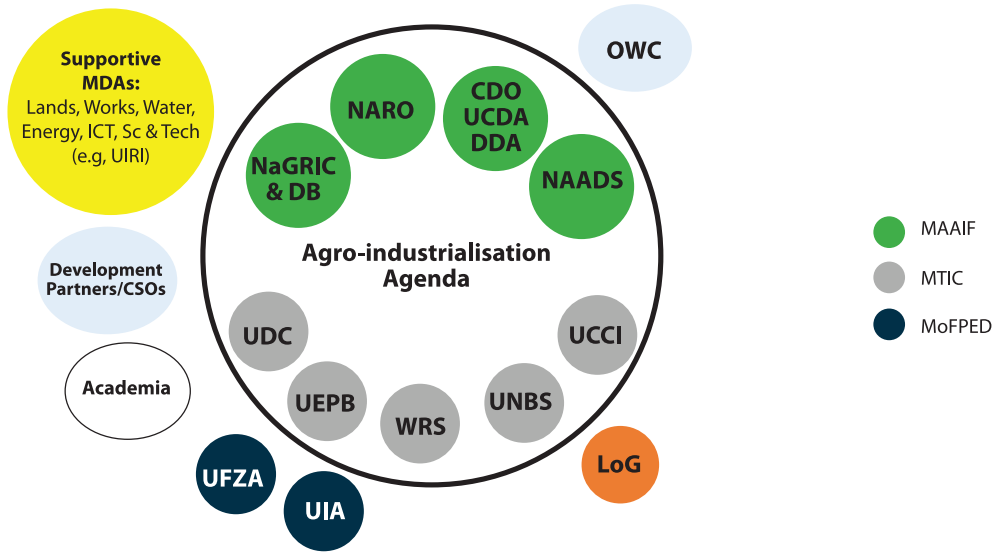
Beyond the creation of new/parallel agencies, new ministries are being created (e.g. Ministry of Science and Technology - which now houses the Uganda Industrial Research Institute (UIRI) - from MTIC) as well as creation of new directorates and departments within existing ministries. These institutions are being created for different reasons such as, failures of existing institutions to internalise external influence; elite capture; rent seeking; and/or patronage politics. The political/policy response to institutional failure has largely been the creation of new institutions, done without due consideration of whether, to what degree, the new institutions will complement or duplicate the functionality of the existing institutions. These institutional issues have created challenges of coordination and harmonisation of the different mandates and roles to support AGI. As a consequence, the meagre financial and human resources are spread too thinly to realise the desirable outcomes across these multiple MDAs.[8]

Some of the above sector agencies e.g. Uganda Coffee Development Authority (UCDA), Cotton Development Organisation (CDO), and National Agricultural Research Organisation (NARO) were set up by Acts of Parliament. Other institutions (such as OWC) are State institutions set up as provided for in the constitution. The irony is that the overtly State institutions (such as OWC) are

7 The Coffee Strategy was integrated in the National Coffee Strategy 2015/15-2019/20 and in the revised 2015/16 – 2024/25 Coffee Road Map, targeting 20 million bags.

8 There are on-going efforts by the Ministry of Public Service to address this issue

Figure 3: Complexity of the institutional arrangements guiding Agro-industrialisation agenda



Note: The figure does not include private institutions and associations.
Source: Author's compilation based on the Stakeholder Mapping Meeting, March 03, 2018.

set up as temporary initiatives but command more power and budgetary resources than institutions. While the State institutional initiatives typically lack a long-term strategic direction, they could still deliver on their objectives if well managed.

Across the agencies, the evidence of weak coordination can be demonstrated by the significant failures of the tea planting and expansion programme – where only 30 percent of the seedlings survived.[9] This is partly attributed to weak coordination amongst MAAIF, NAADS and LoGs in implementation of the programme.

The creation of sector agencies has also opened up more vacuums for the agricultural sector. Sector agencies such as UCDA and CDO, which are commodity based institutions, have taken up additional functions of product development, e.g. seed multiplication. This is also true for NAADS, whose mandate has significantly changed from 2015 from advisory to input procurement, without the relevant statutory amendments (see section 3.2). The creation of these agencies arose due to the need to provide commodity specific technical support (such as for cotton, coffee, dairy).

Domestically, the focal institution in the trade framework and the main Government body tasked with promoting both internal and external trade in the country is MTIC. As part of its operations, MTIC also oversees institution including the Commodity Exchange Limited (UCE), UNBS, UIRI, UE and Uganda Development Corporation (UDC). In additio to these, there are a number of commodity specific bodies like UCDA, CDO as well as commercial service offices in every district.

While the institutional framework is supportive in the export of agro-industrial products, there are still numerous challenges. Institutions at the production level are not well linked or coordinated with institutions at the marketing and export level. This critical gap needs to be addressed as discussed in subsection 3.2.1.

Besides the public institutions, there are umbrella and business associations that have and continue to play critical roles associated with Agro-industrialisation. Umbrella associations such as UNFFE Private Sector Foundation Uganda (PSFU) and Ugand Manufacturers Association (UMA) engage Governmen with the aim of improving the business investment climate for the agro-industry. Specifically, PSFU and UM engage government on different policies and strategie to support the private sector in manufacturing or agro-processing for regional and international markets. Whil

9 Mbarara University of Science and Technology (2016).

some of these associations (such as UMA) have been quite successful in policy advocacy and in collaborating with Government to improve the business environment to attract more domestic and foreign investment, their uptake of R&D to improve quality and productivity in their industrial activities remains low.

It is not absolutely clear why some institutions failed to deliver on the assigned roles and responsibility. For instance, the National Trade Policy identifies training for business and entrepreneurial skills development and public-private partnerships (PPPs) as their key areas of policy action. At the same time, the policy places responsibility on the private sector. Training and skills development require government investment. Moreover, implementation of PPPs provision of agro-industrial infrastructure (such as cold storage facilities, refrigerated trucks and laboratories) has been difficult to realise in an economy with a weak private sector that is also dominated by external players rather than domestic ones. Furthermore, the participation of the private sector always comes with tax expenditures and other incentives – which in turn impact government's revenue mobilisation efforts. In this regard, there is need to re-examine the role of the State in driving the AGI agenda, particularly in the presence of a weak private sector.

3.4 Programs Supporting Agro-Industry Development

To achieve its AGI aspirations, Uganda has over the past decades implemented a number of programs. This section discusses selected programs including: commodity specific agencies, Plan for Modernisation of Agriculture (PMA); OWC, PPPs for selected Agro-Manufacturing industries, as well as projects directly supported by Development Partners.

3.4.1 Commodity specific agencies/organisations

The first 'pro-market' and 'pro-efficiency' institutional reforms to increase the productivity of Uganda's agricultural sector were undertaken over the period of Economic Recovery Program (ERP) from 1990 to late 1990s. These took the form of market oriented economic policies with major focus on economic liberalisation and privatisation of public enterprises. The key result of these reforms was the abolition of State commodity bodies, such as Produce Marketing Board (PMB); Lint Marketing Board (LMB); and Coffee Marketing Board (CMB), which played big roles in produce marketing, organising farmers into groups for easy provision of extension services, and in credit provision. The abolition of these key institutions was detrimental to the agricultural sector since the newly created agencies (UCDA, CDO, among others) did not take on all the roles performed by the previous public enterprises (Bategeka et al., 2013).

3.4.2 Plan for Modernisation of Agriculture

The Plan for Modernisation of Agriculture (PMA) was an integral part of the strategies of the Poverty Eradication Action Plan (PEAP). PMA was meant to drive modernisation and not industrialisation of agriculture. The political choices made, to focus only on two pillars (i.e. NAADS and Research and technology development – leading to the establishment of NARO) out of the seven pillars[10], partly explains the failure of PMA to achieve the expected outcomes. This meant that the synergies amongst the pillars were lost.

The NAADS was designed to perform the following core functions:

- Offer advisory and information services to farmers;
- Support technology development and linkages to markets;[11]
- Provide quality assurance and technical auditing of service providers;
- Support private sector institutional development; and
- Engage in program management and monitoring.

NAADS operated a public-private extension service delivery approach geared towards increasing market-oriented agricultural production by empowering farmers to demand and control agricultural services. However, from 2006, NAADS shifted its focus towards input distribution, which partly explains the withdrawal of World Bank support to the program. Even under the new

10 Seven pillars included: Research and technology development; national agricultural advisory services; agricultural education; improving access to rural finance; agro-processing and marketing; sustainable natural resource utilisation and management; physical infrastructure.

11 NARO develops technologies, and NAADS establishes demonstration sites to test the technologies. Thus, NAADS role is to promote the already developed technologies.

focus, NAADS faces a number of challenges in its goal of enhancing production and productivity. Key among these challenges is unregulated contracting of private agents to supply inputs without the involvement of NARO (for technical backstopping and quality control). This is an oversight in technology development and linkage to farmers.

3.4.3 Operation Wealth Creation

The Operation Wealth Creation (OWC) managed by the Uganda Peoples Defence Force (UPDF) was created in 2015 in response to the perceived failure of NAADS to effectively transform the agricultural sector from subsistence to commercial farming. The key roles of OWC (relevant to this Report) include:

- x Provision of planting and breeding materials;
- x Agricultural mechanisation;
- x Provision of water; and
- x Provision of microfinance services.

OWC was intended to facilitate growth of household income through agriculture as well as address service delivery challenges in agriculture resulting from the institutional failure of NAADS. Currently, OWC is delivering planting materials to farmers through an input subsidy. UPDF officers fully supervise the subsidy distribution of farm inputs at village level, which inputs are procured by NAADS. The subsidy is meant to target the most vulnerable farmers, though this has not been easy in practice as Uganda lacks the database on farmers. In addition, traceability of the inputs delivered to farmers remains a challenge.

3.4.4 Agricultural Cluster Development Project

The MAAIF is implementing a USD248 million Agriculture Cluster Development Project (ACDP), with the aim of raising on-farm productivity, production, and marketable volumes of selected agricultural commodities in 12 specified geographic clusters.[12] The ACDP Project is co-financed by the World Bank/IDA (with a 60.5 percent contribution), GoU and farmers. The Project, which targets 450,000 smallholder farmers became effective on January 23, 2017 and is expected to end its operations in March 2022. ACDP supports intensification of on-farm production of five priority commodities (maize, cassava, beans, rice, and coffee) through improved access to agricultural technologies (seeds,[13] fertilisers, pesticides, farm equipment /materials) and mechanisation services facilitated by the use of the e-Voucher system.[14] Project beneficiaries receive necessary training to ensure inputs are used efficiently and effective. Additionally, the Project provides technical assistance and matching grants to farmers' associations to improve their capacity for post-harvest handling and marketing of farm produce. Further, the Project finances infrastructure works to eliminate bottlenecks and trouble spots on rural access roads critical for the movement of farm produce to markets.

Given that the Project addresses constraints along valu chains of priority commodities, and is to be implemented for at least four years, its successful completion has the potential to significantly contribute to the country's AGI agenda and to promote the export of agro-industrial products.

3.5 Policy Incentives in Support of Agro-Industrialisation

GoU has put in place several incentives to promote investment operations, particularly in value-added manufacturing and agro-processing (GoU, 2014). The Uganda Investment Authority (UIA), Uganda's Investme Promotion Agency, was created by the Uganda Investment Code Act (Cap 92) which was promulgated in 1991 as a generic investment promotion Agency. Within its policy framework, attractive incentives to both domestic and foreign investors in manufacturing have been introduced - though these incentives are skewed towards the latter. Under the Uganda Investment Code of 1991 (Section 22), a package of fiscal incentives is given to investors, including those in the manufacturing sector. The incentive structure comprises of the following:

- x Capital recovery of plant and machinery costs;
- x Capital recovery of significant training-related

12 Groups of districts where production of priority commodities (maize, cassava, beans, rice and coffee) is highest.

13 Input distribution under this smart subsidy program begins in November, 2018. At the time of writing this Report, detail of the types of seeds to be distributed apart from knowing the crop types (i.e. maize, cassava, beans, rice and coffee) was not known.

14 The e-voucher system is expected to work even in peasant economies with low monetization. Farmers who are selected to benefit from the program are registered with the e-Voucher Management Agency. Similarly, credible agro-input dealers who will supply the inputs are registered. The farmer will receive an e-Voucher indicating the value of inputs he/she needs, this is what will be presented to the input supplier to be supplied with the inputs. The input supplier will use the voucher to get paid.

costs;

- 50 percent of allowances for plant and machinery; and
- 100 percent of training costs being deductible on a one-time basis from a company's income.

A range of annual deductible and depreciation allowances also exist, resulting in investors normally paying substantially less than the 30 percent Corporate Tax rate in the early years of their investment.

Fiscal incentives: At production level, imported inputs (including ploughs, hoes, seeders, fertilisers, chemicals, tractors, among others) are Valued Added Tax (VAT) exempted under the VAT Act of 1996. These inputs are also exempted from all taxes when imported by farmers under the Fifth Schedule of the EAC Customs Management Act, 2004 (URA, 2017).

Handling and Packaging: At processing and marketing levels, imported inputs including refrigerated trucks, aluminium cans, heat insulated milk tanks and insulated tankers and packing material of any kind designed for packaging goods for exports, are exempted from all taxes under the Fifth Schedule of the EAC Customs Management Act, 2004. Machinery for processing agricultural/dairy products are also VAT exempt (2015) and have zero import duty. Agro-processing plants whose outputs are for Ugandan consumption are also zero-rated.

Importation of machinery/equipment, and logistics: In order to promote export-oriented manufacturing investments, the Government, since 2008/09, has continued to introduce additional fiscal incentives in the Budget with a view to attracting foreign direct investment (FDIs) in the manufacturing sector. These include removing the import duty on plant and machinery imports, agro-processors, and heavy truck transportables (UIA, 2016). Import duty on trucks with carrying capacities of at least five tons were reduced from 25 percent to 10 percent, while trucks with minimum capacities of 20 tons have no import duties (UIA 2017, KPMG, 2017). Taxes on industrial spare parts were also removed, as were duties on insulated milk tanks. The Government further provides tax holidays for durations ranging from one to 25 years, to investors engaged in export-oriented production and, if the investment is located more than 25 km away from Kampala, for agro-processing investors.[15]

In 2008/9, support was extended to agro processing with new investments in rural areas becoming income tax exempt. Exemption cases include: exemption of the supply of unprocessed foodstuffs, unprocessed agricultural products and livestock; supply of feeds for poultry and livestock; supply of salt and the supply of packing materials exclusively used by the milling industry for packing milled products (URA 2013, 2017).

In addition, GoU has implemented more targeted tax exemptions towards the development of agro-industry during 2000 to 2016 period. For instance, the supply of cereals grown and milled in Uganda as a means of supporting the establishment of milling capacity in the country is VAT exempt (URA, 2013). In 2006/7, tax on interest earned by financial institutions on agricultural loans was exempt as a means of making credit more affordable for farmers. However, the share of agricultural loans in total commercial bank lendings only increased from 7.1 to 8.4 percent between 2001 and 2013.[16]

Despite the existence of these exemptions, Kasirye (2015) reported several challenges of tax exemptions for the agriculture sector. Notably, first, tax exemptions do not translate into preferential interest rates for borrowers in the agricultural value chain. Second, despite the zero rating of VAT on seeds, fertilisers and pesticides, uptake by farmers remains very low due to existence of counterfeits, the high cost of technologies, and limited knowledge, among others. Thus, discussed in section 4.3.1, only 4 percent utilise a package of productivity enhancing technologies.

Third, due to challenges of tax administration, middlemen were able to exploit the agricultural tax exemptions to evade taxes. In particular, the VAT exemption on

15 Companies within the agricultural value chain that have benefited from the tax holidays include BIDCO (U) Ltd, Vinci Coffee Company limited, Southern range Nyanza, Lydia home textile and Christex garment industry (Tax Justice Alliance Uganda, 2017).

16 The same assessment shows that majority of agricultural loans were destined for crop finance with less than 25 percent of the loans earmarked for crop production. Relatedly, the zero-rating of VAT on seeds, fertilisers, and pesticides did not produce a noticeable changes in the use of these specific inputs—use of improved technology remained less than 7 percent during 2001/2-2013/4.

supply of animal feed and poultry encouraged some businesses engaged in other activities to falsify their products as feeds. Similarly, the VAT exemption on agricultural machinery was abused by importers declaring other machinery as agricultural equipment.

Overall, the zero-rating of VAT on agricultural inputs also encouraged importation of inputs—some of which could be procured locally if there was no tax incentive. A case in point is the zero rating of milk, including milk treated in any way to preserve it.

Arguably, tax exemption proposals for financing the agriculture sector in Uganda have been ill-conceived, lacking strong supportive evidence to inform their design and implementation, and have had limited intensive debates from the relevant MDAs to mitigate moral hazards. Moreover, the objective of granting and/or retaining policy of exemptions and zero tax rating for the agriculture sector were intended only for the short-term, mainly towards forcing agricultural enterprises to register for VAT or intended to bring economically viable agricultural enterprises into the tax bracket. Attempts to reverse such exemptions have caused protests (Kasaija, 2015).

Infrastructure incentive: To increase investment in manufacturing, the UIA is implementing reforms to ease business transactions through a plan to construct a number of industrial parks in the country (UIA 2016). The aim of these business parks is to create jobs and add value to locally available raw materials (Office of the Auditor General, 2015). Close to 20 of the 21 proposed industrial parks are specifically targeting agro-processing plants tailored to the geographical resource niche of their identified towns (UIA, 2018). This is expected to fundamentally provide market, reduce post-harvest losses, boost production and create value, among others (ibid).

According to the UIA, land at these sites is available and applications for development are being accepted. However, there is lack of transparency in the land access process and there seem to be tendencies to favour foreigners instead of Ugandans. This might be addressed through the new amendments to the Investment Code. That said, there is need for UIA to sequence the development of these industrial parks especially in terms of ensuring the availability of utility services to support the development of Agro-manufacturing industries.

The UIA also identified agro-processing as a priority sector eligible for fully subsidised land or waiver of land premium charges in line with Government policy. This waiver is however also applied to exceptional investments or investment plans worth more than USD 25 million to investments intending to create more than 500 jobs in the said land; or to investments that are likely to incur over USD 400,000 on preparation of the land (UIA, 2015). Special consideration in awarding land is given to higher value investors and agro-processors.

Intensive debates have taken place on the beneficiaries of Government's incentives in Uganda—even within policy circles. One school of thought is that agriculture in Uganda target foreign investors. Evidence from neighbouring countries—notably Kenya and Tanzania—which offer a wider array of tax incentives, show that tax incentives may not necessarily attract higher foreign investments (SEATINI, 2012).[17] The bias in Uganda towards foreign investment can be a disincentive to domestic investors especially in agro-manufacturing, and also make them less competitive. Related, the incentives towards the agricultural sector are mainly imports and of mostly high-end products out of reach of small farmers and small-scale processors/ investors. The skewed nature of agricultural tax incentives—benefiting importers - was the reason for the attempted abolition of tax incentives to the agricultural sector in 2014.[18]

As discussed earlier, the culture of policy evaluation remains limited within Government. This is also true with evaluation of the impact of policy incentives. Thus, Uganda's policy incentives are hardly reviewed (Kayaga 2007) or evaluated for impact. If any evaluations are done, the results are not transparently utilised as

17 Furthermore, evidence from OECD countries indicate that factors other than tax incentives e.g. macroeconomic stability; a supportive legal and regulatory framework; skilled labour and labour market flexibility; well- developed infrastructure; and business opportunities tied to market size, attracts foreign investors (OECD 2007).

18 The reversal of VAT exemptions on agricultural inputs and machinery announced during the 2014/15 budget speech sparked an uproar from MPs and CSOs were described within 3 months of the pronouncements.

evidence for extending or introducing new incentives[19]. It is therefore highly likely that incentives are being added on to old ones with limited proof of additional benefits or safeguards against distortion.

There are other financial incentives aimed at promoting the agricultural value chain through the concerted efforts of Government and DPs. These mainly come in the form of blended financing such as loan guarantees by lines of credit – for example, aBi-Trust (aBi-Trust, 2016) and the Agricultural Credit Facility (ACF) (see Chapter 7) under BoU. Some of the blended support also come in terms of technical skilled experts that support the bankability of agricultural investments to attract private sector investments in agriculture. Notwithstanding the fact that these incentives hugely reduce the risk of agricultural investments across the entire value chain, their combined effect is difficult to estimate since they are provided by different donors without a uniform, combined mechanism to track, monitor, report and share information.

At the East Africa Community (EAC) level, the Common External Tariff (CET) structure supports Agro-industrialisation in the region to some degree, and in particular in Uganda. Partner States apply same tariff for goods originating from outside the region at the following rates:

a) Zero rates for raw materials, capital goods, agricultural inputs (such as fertilisers), certain medicines and certain medical equipment, imports of relate capital goods (such as processing equipment e.g. rice millers), vegetable oil processors, maize millers;
b) 10 percent for semi-finished products;
c) 25 percent for consumer goods; and
d) 25 to 100 percent for products deemed sensitive (such as milk and milk products, wheat, sugar, rice, cotton products, maize, tobacco and tobacco products).

The sensitive list is meant to protect local industries in line with an infant industry framework in which tariff protection is seen as giving regional firms space to develop competitiveness and build export capacities. As discussed in Chapter 5, this Report proposes inclusion of cassava industry on the sensitive list.

3.6 What are the Requisite Transformative Shifts on Policy Incentives?

Given the challenges of policy incentives outlined above, there is a clear need for transformative shifts in policy incentives if the AGI is to be realised. Among the transformative shifts proposed are:

a) Need to target domestic producers and small and medium enterprises with considerable incentives covering crucial areas of the agricultural value chain. Incentives should aim at increasing production and easing access to markets for local producers to favourably compete with foreign investors;
b) Specific thresholds should be set on inputs and outputs to avoid moral hazards such as importing inputs which could be procured locally. To illustrate this point, if Uganda is to promote the local beef industry by inducing beef processing factories to buy more animals from local farmers, then there is a need to establish the intake capacity (demand) of existing meat processors and assess how much of the demand can be met by local farmers. If local farmers can supply 50 percent, then one would consider restricting imports to the tune of 50 percent of total demand. Import quotas can then be allocated to processors on a proportional basis. Firms that use, for example 50 percent, local inputs can be exempted from a given percentage of taxes, or qualify to claim capital returns from Government;
c) Uganda should develop and enforce a fiscal framework to evaluate and monitor tax incentives so that incentive renewals, withdrawals, or additions are based on cost-benefit evidence;
d) There is need to further realign the fiscal incentives given to the foreign and domestic investors if the country is to realise rapid agro-industrial sector transformation. However, the fair distribution of fiscal incentives should not disregard capacity deficiency prevalent among domestic investors. The other possibility is to

19 In a key informant interview on May 05,2018, UDC argued that policies are evaluated but their results are not widely shared for public scrutiny and accountability

use State regulations backed by carrots and sticks to force foreign investors to partner with locals; to have skills building/training programs for citizens; and, over the long term, to have a certain percentage of management occupied by locals. The aim is to transfer technical knowledge to local agro-industrialists as well as ensuring that the country remains competitive; and

e) Fiscal incentives that have potential to create huge fiscal burdens to the National Budget need to be well sequenced and implemented in the medium term to smoothen the fiscal burden and to give better returns to the country. This would require appropriate policy response, policy commitment, and resource allocations from Government.

3.7 Conclusion

Uganda has the necessary institutional, policy and regulatory framework for AGI, but they require some structural reforms if the agenda is to be realised and sustained. The key take away is that MAAIF, MTIC and MoFPED must closely work together in pursuit of this agenda, and the complex policy and regulatory overload should be simplified through a process of review and integration. Coordination for Agro-industrialisation can further be improved through having a one-stop inter-governmental delivery unit, preferably[20] at MoFPED. This unit would bring together expertise and resources from MAAIF, MTIC, and MoFPED. Incentives, especially fiscal incentives need also to be targeted better, in ways that do not distort industry market. This requires a need to ease assessment of each incentive, including the capacity of targeted beneficiaries to fully exploit the opportunities that come with it. Lastly, policies need to be evaluated for impact through transparent processes and results popularly shared for public scrutiny and accountability purposes. Policy evaluation must also not be just for its sake, but must be utilisation focused. Thus, Government must cultivate the culture of learning and improving from experiences.

20 As suggested by key informants and stakeholder consultation.

4. UNLOCKING AGRICULTURAL PRODUCTION FOR AGRO-INDUSTRIALISATION

Boosting the agricultural raw material base in Uganda is a key basis for fostering a sustainable AG Chapter puts into context and makes a case, that not all crop varieties or animal breeds are suitab purposes. In turn, this requires effective R&D to develop such commodity specificities that are esse to take off.

4.1 Who are Ugandan Farmers?

Uganda has 8.9 million subsistence farmers, who have fragmented land parcel holdings and marked with a significant gender dimension in the labour force (see Box 1). In addition, crop intensification remains limited among farmers – with less than one percent using irrigation and 4 percent using a package of productivity enhancing technologies. Most of these farmers (46.7 percent) engage in mixed farming; 24 percent in crop agriculture only; and the rest in animal husbandry only (NPA, 2017). For as long as majority of farming households remain largely subsistence producers, the agriculture sector cannot produce enough food for consumption, and sustainable raw materials to support AGI. With this characterisation of a Ugandan farmer, it is not surprising that productivity remains low, and the production base is inadequate to spur a sustainable agro-industry. This calls for ways of bringing and re-organising the smallholder farmers into commercial structures, of which revitalisation of cooperatives and strengthening of farmer groups will be critical (see section 4.3.6).

4.2 Production and Productivity

4.2.1 Crop productivity

This section relates the trends in crop productivity with key policy events as presented in Figure 4. Crop productivity has been erratic and partly linked to peace dividend, degree of effectiveness of institutions population growth and reduction in the arable land per capita, climate variability and change, and budget alignment to fund the plans. It is evident that, after Independence (1965-1970), Uganda realised increasing crop productivity until the civil unrest and expulsion of Asians under Idi Amin (1971-79).

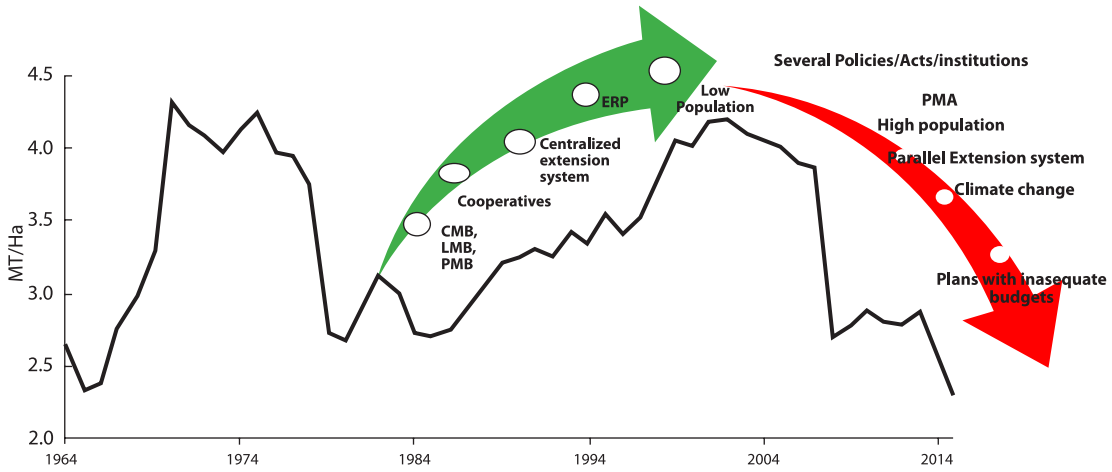
As expected, the civil war of 1981 – 1985 affected crop productivity to the levels almost similar to those observed in the pre-Independence period (see Figure 4). Crop productivity increased during 1986 to early 2000s due to the peace dividend coupled with stronger institutions and a low population of less than 25 million people. Afte 2005, crop productivity started declining at a time when

Box 1: Characterisation of Ugandan farmers

Characteristic	Status
Land size (hectares per household)	1.4
Number of parcels per household	2
% of farmers using a combination of improved seeds, fertilisers, and extension services	4
Farmers using irrigation (%)	< 1
Share of farmers in subsistence agriculture, %	65
Main source of income- subsistence, %	43
% agricultural land holding under small-scale farming	92
Gender dimension (share of women in the total rural labour force, %)	82

Source: UNPS 2015/16.

Figure 4: Decline in crop productivity is eroding production base



Notes: a) Crop productivity computed for all crops as total output per total cultivated land under crops.
b) The mapping of institution is not necessarily an association between regimes and agricultural performance but an indication of the policy that were existing at a given point in time.
Source: Author's computations using FAOSTAT Data.

Uganda witnessed the creation of multiple institutions that replaced the older and stronger institutions such as cooperatives, and Coffee, Lint and Produce Marketing Boards (CMB, LMB and PMB). These institutions were replaced with comparatively weaker ones, and there is on-going creation of parallel institutions as well due to failure of these reforms.

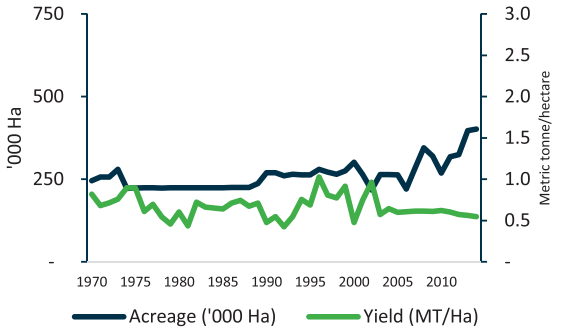
The other plausible explanations for declining crop productivity since 2005, include changes in the extension service provision – from centralised to parallel systems, unfunded plans (see Chapter 7) and uncoordinated development financing; population expansion and its effect on the ecosystems and the on-set of climate variability. In addition, in 2005, Uganda adopted a new political dispensation (multi-party system) that indirectly contributed to the abolition of graduated tax which hitherto forced farmers to cultivate coffee, cotton and other crops and earn incomes – in turn supporting the production base.

At the crop level, on-farm productivities have remained well below those achievable at the research stations. For instance, maize crop yield stood at 1.65 tonnes per hectare in 2015/16 compared to 5 tonnes achievable at research stations - representing a yield gap of 3.35 tonnes per hectare. The lower than expected yields is linked to the poor characteristics of smallholder farmers (see Box 1). As such, farmers need appropriate institutional support and re-tooling if they are to become competitive and serve the AGI agenda. Box 2 compares the competitiveness of Uganda's coffee sector with that of Vietnam.

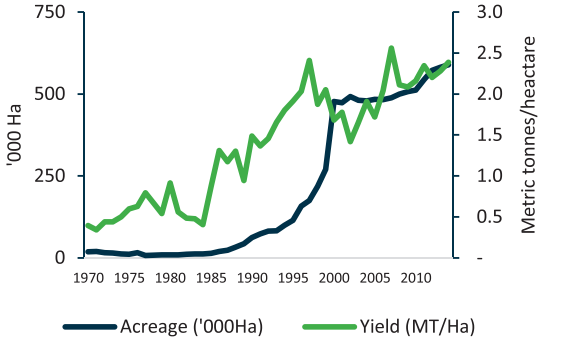
Box 2: How Uganda's coffee industry compares with that of Vietnam?

First, the major success factor in the coffee industry of Vietnam has been throu utilising land that was undeveloped and later on used for coffee planting in the ce 2007). Second, Vietnam embraced an aggressive coffee intensification drive. Th mental in Vietnam's coffee intensification program included - adopting high pe varieties; provision of water for irrigation for drier areas, and matching inputs like gicides and pesticides (World Bank 2011). Embracing coffee intensification strate the success desired in the coffee industry.

Uganda



Vietnam



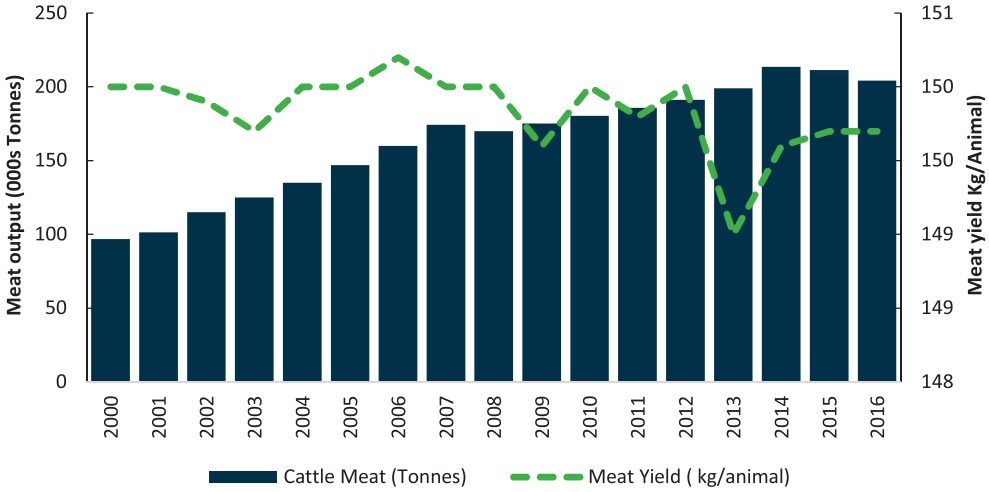
4.2.2 Livestock productivity

Cattle is the primary source of meat and milk in Uganda – with a share of 61 percent (ACET, 2015).[21] Cattle rearing is concentrated in the 'cattle corridor', which extends from South-Western to North-Eastern Uganda. The cattle population is largely made up of low beef yielding indigenous cows (94 percent), and the most dominant indigenous breed is zebu/Nganda (70 percent), followed by Ankole (30 percent). It is evident that while the number of animals slaughtered for beef increased by more than two-fold from 645,000 in 2000 to 1,364,947 in 2016,[22] carcass weight at slaughter stagnated at an average of 150 kgs per animal during the same period (Figure 5). This leaves a gap betwee an Industrial processors' requirements of beef yield of 350kgs at live weight and producers' capabilities. Essentially, cattle numbers are steadily growing withou the commensurate yields in beef. These low productivit levels have greatly impacted MAAIF's efforts to achiev ther 2020 production targets as discussed in the next section.

21 Cattle are the major livestock in Uganda and contribute about 74 percent of the country's total livestock.

22 http://www.fao.org/faostat/en/#data/TP

Figure 5: Uganda's cattle mean production and yield



Source: Author's computations based on FAOSTAT database (2018).

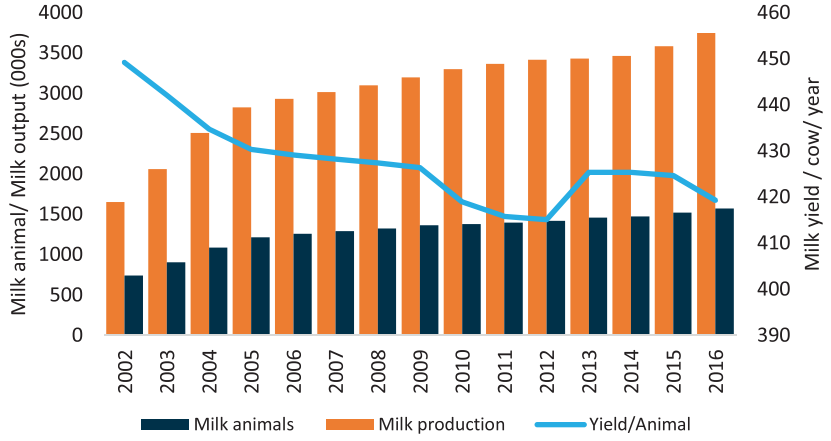
Figure 6 presents trends in Uganda's milk producing cows, milk output and milk yield per cow per year in Triennium moving averages (T.E) – which computed to reduce the effect of seasonal fluctuations on trends of milk output, yield as well as milk producing animals. The milk output more than doubled from 741,538.3 tonnes in 2002 to 1,572,414.7 tonnes in 2016. This growth resulted from increased number of milk producing cattle rather than growth in milk yield per cow. Indeed, while the number of milk producing cows increased more than two-fold from 1,653,333 in 2002 to 3,749,038 in 2016, milk yield per cow declined persistently from 450 litres per animal per year in 2002 to a low of 415 litres per animal per year by 2012. After 2012, milk yield slightly improved to 425 litres per cow per year but stagnated for three consecutive years before again declining to 419 litres per cow per year in 2016.

4.2.3 Production targets of key Agro-industrialisation commodities

Sufficient volumes of agricultural produce are essentia to ensure sustainable supply of raw materials to agro-processing/manufacturing industries. Increased agricultural output is a prerequisite for AGI. Uganda's Agriculture Sector Strategic Plan (ASSP) 2015/16 – 2019/20 set production targets for priority and strategic agricultural commodities. The production targets are intended to ensure that the domestic demand is met, export volumes and earnings increase, and import substitution is promoted (MAAIF, 2016).

Two observations emerge from Table 1. First, productio has fluctuated over the years, implying that the attainment of the set production targets may not be realised. Volatility is higher for crops than non-crops

Figure 6: Trends in milk producing cows, milk production and yield in Uganda (T.E)



Source: Author's computations based on FAOSTAT database (2018).

(fisheries and livestock). Within crops, cotton appears to have suffered the greatest decline between 2012 and 2016. Significant fluctuations in production also imply unreliability in the required supply of raw materials. Unless effective measures are established to ensure adequate and timely supply of raw materials to meet targets, industrialisation through agriculture will remain a dream.

Second, relative to the 2016 actual production, production levels for most commodities need to more than double so as to meet the set production targets. For instance, on one hand, output of coffee, a leading export earner, has to increase 2.5 fold during the ASSP period, and by five-fold to meet the coffee road map target of 1.2 million tonnes by 2030. On the other hand, production of maize, the leading food security crop, has to increase four-fold to meet the 2020 targets.

The implementation failures in terms of budget and weak coordination mechanisms within and across institutions partly explain these gaps. Cotton experienced a decline in production after 2011 owing to the reduction in the indicative price per kilogramme from UGX 2,300, the highest in the previous one hundred years, to UGX 1,100. This suggests that production of cotton by farmers is a function of the indicative price and is the main incentive for farmers to either grow or not grow cotton depending on the direction.

There are, however, signs that some of these gaps ca taken closer to. For example, Uganda Prisons Service (Priso Farms Units) have significantly expanded the acreage under cotton and maize. Government has provided Prison Farms with farm implements, particularly tractors to enhance mechanisation.

4.3 Enablers of Agricultural Production

The agricultural production base remains weak to suppo a strong and sustainable AGI agenda as demonstrate above. This section discusses important enablers to unlock agricultural production in Uganda. Possible interventions are proposed to close the production gap to ensure sustainable supply of raw materials for Agro-Manufacturing industries.

4.3.1 Research and development

Research and Development (R&D) for production has t ensure that resilient yield enhancing technologies (for crops, fisheries and livestock) are generated. For crop production, these technologies should be supported with sustainable land management practices (e.g. irrigation, fertilisers); and for fisheries sustainable water management practices. The institutions engaged

Table 4: Agricultural commodity production trends, targets and gaps

Commodity	Actual					Target	
	2012	2013	2014	2015	2016	2020	Gap[a,c]
Coffee	186,125	222,895	211,872	229,150	243,061	595,890	2.5
Cotton	47,577	18,571	14,594	17,275	20,339	64,750	3.2
Tea	57,939	60,970	65,373	58,588	39,299	112,000	2.8
Maize ('000)	2,734	2,748	2,647	2,813	2,483	10,000	4.0
Oil seeds[b]	572,000	680,797	711,352	613,684	672,588	2,027,000	3.0
Fisheries ('000)	407,119	419,248	461,726	454,860	467,528	674,028	1.4
Beef	191,280	197,019	202,929	209,017	214,033	360,000	1.7
Dairy (million litres)	1,460	1,504	1,549	1,596	1,634	3,350	2.1

Notes: [a]. The Gap is computed by comparing the actual figures of 2016 to 2020 targets.
[b]. Includes groundnuts, soya beans, sesame, sunflower and palm oil.
[c]. Targets are projected based on previous production trends and future expectations in terms of, e.g. projected increase in area unde expectations on international prices of agricultural commodities, government revealed plans to invest in provision of certified seed, extensi inputs (fertilisers, pesticides, etc).
Source: UBoS (2017) for the actual production figures; and MAAIF (2015) for the production targets.

in R&D to support the production base at is mainly public, but with growing presence of the private sector. The public institutions include NARO and its affiliated institutions, including the National Crops Resources Research Institute (NaCRRI), National Agricultural Research Laboratories (NARL), National Coffee Research Institute (NaCRI), and National Semi-Arid Resources Research Institute (NaSARRI) for crop research; and National Livestock Resources Research Institute (NaLIRRI) for animal related research and NaFIRRI for fisheries research. The country also has the National Gene Bank and National Genetic Resource Information Centre and Data Bank (NAGRIC&DB) which are repositories for genetic diversity in seeds and crop agriculture and animals respectively. These institutions are complemented by publicly supported tertiary institutions such as Makerere University. However, R&D promotion remains fragmented, low order and underfunded by Government, with limited uptake where innovations have been made.

NARO is the body mandated to generate yield enhancing technologies as stipulated in the National Agricultural Research Organisation Act 2005. While it has made substantial progress in R&D technology uptake remains low (Table 2). For instance, NARO generated over 40 crop and livestock technologies in 2016/17 but only three were delivered for uptake (MoFPED 2017). It is important to note that NARO's role is limited to technology generation and not dissemination, and the problem of low uptake is largely beyond the scope of its mandate. However, this could be a clear indication of the weak R&D, extension and farmer linkages, and vertical and horizontal institutional coordination. Other factors highlighted in Government policy documents include limited funds for multiplication of technologies, limited integration of indigenous knowledge (social cultural norms), and low drive for innovation.

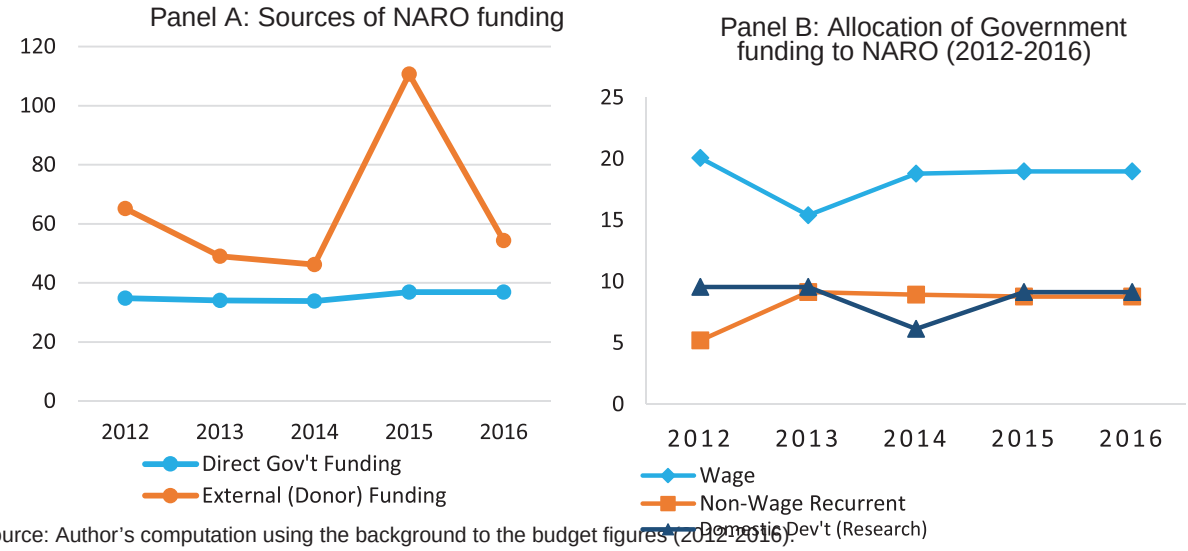
While NARO is critical to supporting a strong and stable production base, it has a rather weak resource base (financial and human) to deliver its mandate. For instance, NARO has a staffing gap of 74 technical staff (GoU 2016), most Government funding to NARO is directed towards recurrent expenditure but less to development (MoFPED) as depicted in Figure 7 (b). This limits NARO's ability to generate new cutting edge technologies. Figure 7 (a) confirms NARO's high dependency on donor funding – which is risky for the sustainability of NARO's research program. One would argue that Government does not take R&D as a priority in terms of meeting the set production targets. As the saying goes 'He who holds the purse has the power'. It is also worth noting that donors prioritise research funding for food security enhancing technologies but not to those strategic crops that could turn around the Agro-Manufacturing industries.

Table 2: Uptake of productivity enhancing technologies by farmers, (%)

Technology	Maize	Coffee	Cotton
Improved seeds	21.0	8.9	58.6
Organic fertiliser	12.4	34.2	20.0
Inorganic fertiliser	8.0	8.5	1.8
Herbicides	7.7	9.2	1.7
Pesticides	9.0	12.9	51.2
Irrigation	0.0	0.4	0.0

Source: Agricultural Technology and Agribusiness Advisory Services (ATAAS) baseline survey 2014.

Figure 7: Funding research and development for NARO, UGX billon



Source: Author's computation using the background to the budget figures (2012-2016).

Livestock. Similar to crop enterprises, uptake of improved animal related technologies and practices (such as improved breeds, use of supplementary feeds, artificial insemination, and modern milking equipment) remains limited. According to UBoS (2017), only seven percent of cattle keepers rear exotic breed and less than one percent use artificial insemination. While Uganda has registered breed improvements, this comes with increased maintenance costs – improved breeds are highly susceptible to diseases and pests; and need for pasture and dry hay. Thus NAGRIC&DB need to be supported to develop cheaper but effective technologies to support production for industry.

Fisheries. NaFIRRI is mandated to generate and disseminate fisheries technologies for increased and sustainable fish production, conservation of the fisheries genetic resources, water quality and fish habitat. In the Fisheries sub-sector, almost all producers of fish use the conventional hunter-gatherer method to capture fish. A negligible proportion of fish farmers (0.02 percent[23]) use the floating fish cage system, an innovation that is 12 times more productive than the capture fishery system (Mbowa et al., 2016). On average, each fisherman using the capture fishery system produces 4 metric tons of fish annually compared to 48 metric tonnes produced with floating cage culture. Clearly, the productivity gains from using floating fish cages are enormous and therefore scaling up the use of this innovation would ensure a) sustainable supply of adequate fish for the fish processing industries in Uganda.

From the analysis, there are six emerging observations on R&D:

a) R&D at production level seem to be biased toward boosting food security with less focus on technologies to support Agro-Manufacturing industries. This calls for alignment of public investment to support the relevant R&D for the industry.

b) The level of technological advancement vary across the selected commodities. For example, while the available maize varieties can ably serve the Agro-Manufacturing industries, cassava and beef require for AGI-specific varieties/breeds that must be developed. The ongoing technology development at NAFIRRI are also not supportive of the leading export fish type - the Nile Perch.

c) There seems to be weak linkages between R&D and public institutions responsible for technology transfer. This is partly due to limited involvement of R&D institutions in quality assurance of the procured inputs for production.

d) Some technologies are presently externally sourced despite the fact that Uganda has local R&D institutions. This is especially true for oil palm and tea. The importation could be left to serve in the short to medium term but in the

23 There are 28 registered cage culture fishing farmers.

long term the local R&D should be in position to sustainably supply these technologies to support AGI.

e) There should be strong linkage between farmers and sources of technologies as well as suitable forms of technologies, their adaptation and traceability. This should be ensured through an effective extension system.

f) There is growing private sector participation in the R&D, as illustrated in Box 3 – although this raises concerns of affordability by the smallholder farmers. Also of note is the limited linkages between the public and private R&D institutions that seem to compete rather than complement each other. However, cassava presents a unique example where NGOs like the African Innovations Institute (AfriI) and Cassava Community Action Research Programme (CARP) are also key players developing new varieties in compliment with National Agricultural Research Systems (NARS).

Given the deficiencies identified above, therefore, GoU should fully and sustainably support funding for development research to boost the R&D capacity of NARO so as to respond to the requirements of the Agro-Manufacturing industries. Further, NARO should strengthen its capacity to effectively coordinate and ensure that the quality of the R&D generated matches the requirements of the Agro-Manufacturing industries. The participation of the private sector in technology generation is also an opportunity that should be harnessed by NARO, but the participation has to be monitored and guided to meet minimum international standards.

4.3.2 Land

Land is the most important factor of production in an agrarian economy. This Report take cognisance of the political economy around land in Uganda that has, in turn, resulted in land fragmentation due to population pressure, land insecurity due to tenure systems, undeveloped land market, and weak institutions

Box 3: Illustration of the role of private sector in R&D

AGT Laboratories Tissue Culture, Buloba

Agro Genetic Technologies (AGT) laboratories is a subsidiary private company of A
founded in January 2002. AGT Laboratories is a private company in Uganda that uses
culture techniques for micro propagation of different crops on a commercial basis. Th
cultured plantlets of bananas, pineapples, coffee, tea, cassava, sweet and Irish po
forest trees. These plantlets are of high quality - uniform, pathogen and pest-free, ar
cultured plantlets are produced in large quantities within a short period of time (it take
a plantlet and thousands of plantlets can be propagated at the same time) – the tech
quality planting materials all year round. AGT Laboratories is currently the biggest tiss
and Central Africa with the capacity to produce up to 10 million plantlets per year. In a
cultured planting materials, the company offers training and advisory services on ge
to its customers – thus, the company is complementing MAAIF in provision of extens
culture technology has received good response amongst local farmers in Uganda.-C
ries has set up several nurseries (sales points) and demonstration gardens in local fa
farmers can access the plantlets and are trained about the technology, respectively
contributing to bridging the gap between research, technology generation, dissemina
The company is privately funded with occasional support from the government and d

Notes: For more information see http://www.agtafrica.com/Laboratories/LabHome.aspx
Source: EPRC interview with the founder Mr. Erostus W. Nsubuga.

(Mwesigye and Matsumoto, 2016). Furthermore, the fact that arable land available in hectares per capita has significantly declined from 0.49 in 1964 to 0.17 in 2015 due to population pressure is also recognised.

Given the above, the question of how efficiently farmers can be organised to ensure sound production practices arises. First, Government should intervene as an active player in the production process and come in to utilise public land beyond being an enabler. For instance, as much as GoU has already taken advantage of the redundant public institutional land (such as for prisons, cattle ranches under MAAIF and, there is need to expedite as well as to identify and map this land to produce sustainably for Agro-Manufacturing industries. It is also important to note that Government cannot directly engage in active farming as it is not an efficient player in this area. This is demonstrated with the current State ranches that are under the mandate of NAGRIC&DB which are producing at about 11 percent measured in terms of total cattle numbers against the total ranch land size. On the public ranches, there is need for NAGRIC&DB to forge partnership with effective and efficient private sector actors to specifically rear breeds that are suitable to support the beef industry.

Second, there are absentee land lords with land that is not under production. There is need to revisit the land-lord tenant clause 32 in the Land (Amendment) Act 2010 'A Lawful or bona fide occupant to be evicted only for non-payment of ground rent. This clause might inhibit land lords to rent out their land long term to tenants for fear of losing rights over it. Third, it is also noted that smallholder farmers are inefficiently using the existing land because they are still stuck in extensive low technology farming (including encroaching on marginal lands, wet lands, etc.) rather than intensive high input farming practices. There is need to address the challenges in the supply side of the agro-inputs, especially quality inputs to promote crop intensification.[24]

Four, there are competing demands on the existing arable land as seen in its use for tree planting against crop agriculture – hence the need to think through re-organisation of farmers around land for production. These competing demands demonstrate weaknesses in the implementation of the National Land Use Policy.

Fifth, specifically for oil palm production, there is need to address the land deficit of 30,000 hectares for Uganda to ably farm import replacement whereas additional land has already been procured in Buvuma and other areas there is need to expedite the processes to ensure that land is put under production but with special attention to the environment.

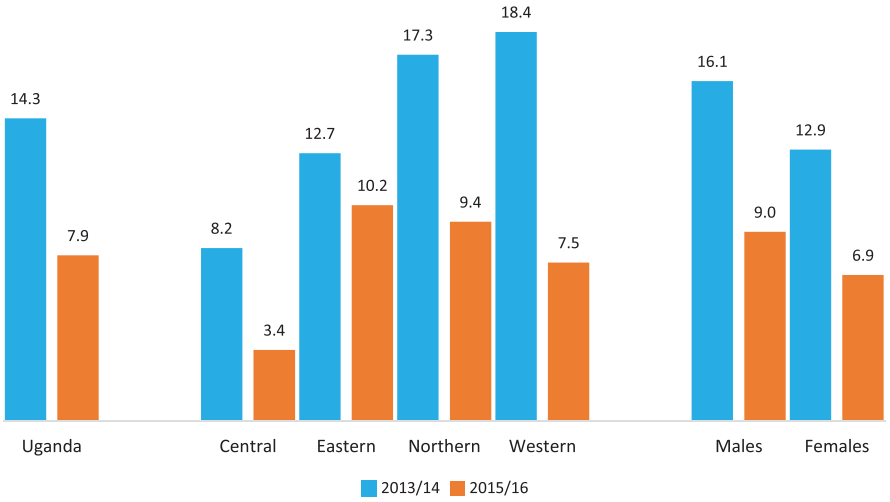
4.3.3 Agricultural knowledge and information systems

Availability of agricultural extension services is crucial for scaling up the use of productivity-enhancing technologies. As discussed in section 3.2, Uganda has had policy shifts around extension from centralised to parallel (NAADS alongside MAAIF) and now back to the centralised single spine extension system. Figure 8 demonstrates how policy reversals, if not well designed could undermine progress. Following the adoption of the single spine system by MAAIF in 2015/16, access to public extension services almost halved at national level, and the same is mirrored at region level and by gender.

A human resource gap in public extension workers arose when MAAIF adopted the Single Spine Reform immediately after Cabinet approval because: (i) contracts of the NAADS coordinators and Agricultural Advisory Service Providers were terminated, (ii) since launch of NAADS in 2002, there had been a donor ban on further recruitment of any more public extension staff at the district level, and extension workers who retired, resigned or died were never replaced (Barungi et al. 2016).

24 . See studies on quality of inputs (Luswata et al., 2015; IGC, 2015).

Figure 3: Percentage of farmers with access to public extension services in 2013/14 and 2015/16



Source: NPA 2017.

In the current reform, Government aims to have one extension worker to 1,000 farmers as one of the inhibiting factors has been inadequate staffing. There are efforts by Government to fill the vacant positions of extension officers and nearly 65 percent of the positions have been filled as of March 2018 (especially of unfilled positions is lower at the sub county level that would transform factors of production to output. Even then, questions that remain unanswered include the appropriateness of the personnel recruited, timely provision of facilitation to enable them undertake effective extension activities, and their connectedness with the smallhouse farmers given the above observed decline in the provision of public extension service.

Effective extension services does not necessarily require very educated agents, but rather requires them to be trained and skilled. Government should consider skilling and devoted scientists from LoGs and use them to leverage knowledge and information to farmers. In addition, the Government could also adopt approaches that train and place field extension workers in their communities of origin, similar to a community knowledge workers (CKWs) model by Grameen Foundation's economic development outreach to rural communities, where the CKWs reside and work in clientele communities. In addition to the standard information given through the traditional extension service, the CKWs could play the role of providing information regarding commodity prices, weather forecasts and other relevant market information to help mitigate risks and uncertainties. All this is intended to support transition of farmers from subsistence to commercial farming.

Another inhibiting factor is that the extension system involves many uncoordinated players from public sector through commodity specific authorities such as CDO and UCDA); peer-to-peer information sharing; private sector; and civil society organisations (CSOs). Farmers tend to seek 'extension services' from the closest source of information (8 in every 10 farmers seek information from fellow farmers based on 2014 Agricultural Technology and Agribusiness Advisory Services (ATAAS)).

Notwithstanding the many shortcomings in the national system, there are lessons on what works and what does not work that inform future extension service provision in Uganda (see Box 4). In addition, Government should also leverage the increasing role of the private sector and CSOs in the provision of extension service.

Box 4: Crop specific extension service provision: the case of cotton

The Uganda Ginners and Cotton Exporters Association (UGCEA) in collaboration with and su
the Cotton Production Support Program (CPSP) in cotton growing areas. Implementation o
pooling resources together under a common fund (Cotton Development Fund). Under this
UGX 200 (Uganda Shillings Two hundred) is levied per kilogram of cotton sold by the farme
varies depending on indicative price). The ginners remit the collection to CDO which then
by supporting various interventions especially to provide production inputs, such as cotton se
fertilisers and herbicides at subsidised rates. It is also used to mobilise and sensitise farme
extension services. The extension system consists of 10 CDO zone coordinators and area co
model has been successful and has been recommended for Zimbabwe by a study on develo
country.

Source: EPRC interview with CDO.

4.3.4 Agricultural risks and mitigation measures

Agricultural production in Uganda remains precarious risky – in terms of its perishability, seasonality, and quality. These problems call for an effective production mechanism along the production chain to mitigate these risks. Agricultural production has overtime suffered volatility largely due to various risks that have to be mitigated (Table 3).

It is important to have an understanding of the sources of risks to the agriculture sector. These include: risks such as adverse weather conditions such as drought, and floods that relate to the possibility that yield will be lower than expected. Other risks include biological, price fluctuation, institutional, labour and health (these relate with individuals and their relationships with each other), and political risks (Table 3). On weather risks, for example, Uganda has experienced climate variability manifested through prolonged and unexpected droughts, changes in the onset of the rainy seasons and floods – for which the farmers have no control. Further, there is notable increase in the warming trends with some models projecting an increase of more than 2°C in temperatures by 2030 (USAID, 2013). Weather risks exacerbate pests and disease outbreaks and livestock epidemics.

The risks facing farmers are enormous and yet there are few mitigation measures. For example, the majority of farmers are not insured. Government efforts through the five year pilot Uganda Agriculture Insurance Scheme (UAIS) that started in July 2016, and interventions by other non-State actors such as Kungula Agri Initiative are relatively new and limited in scale. If these risks are not addressed productivity fluctuations will persist[25] and it will be difficult to realise adequate and sustainable agricultural production to ensure food security and sustainably support the AGI.

4.3.5 Infrastructure for production

Infrastructure that supports production includes Information and Communication Technology (ICT), roads, energy, storage and irrigation. Government's efforts towards expanding infrastructure for agricultural production has varied. For example, one of the bigges enablers for production is ICT. Here, the private secto has invested heavily especially in mobile phone usage where penetration is high in the country though with ar urban bias. Mobile phones have been exploited to provi extension support, and market and climate related information through various social media platforms such as Facebook, WhatsApp, and Twitter. In addition mobile phones have enhanced financial inclusion of the rural communities through mobile money transfers. Yet, it seems that Government has not factored in thes advantages in its policy intervention. It is still unclear the extent to which the introduction of over the top tax (OTT) on social media platforms, and mobile money tax will impact the use of mobile phones for above stated services to enhance agricultural production.

In the context of information gathering, such as soil fertility mapping and crop disease forecasting, and even in pesticide application and pest and disease

[25] For instance, the significant reduction in cotton production between 2012 and 2013 (see section 4.4) was mainly driven by a price shock.

Table 3: Production risks and mitigation measures

Nature of risks	Description	Status quo	Mitigation measures
Weather	Deficit/excess rainfall, extreme temperature (heat or cold)	- Delayed onset of rain - Increased occurrence of droughts - Floods and landslides especially in marginal areas	- Climate Smart agriculture through timely planting, innovative and affordable irrigation such as water harvesting, solar irrigation, drip irrigation, and valley dams
Biological	Pests, disease, contamination, soil degradation	- Army worms, Coffee wilt disease, Cassava mosaic, Maize streak virus, cotton bollworm - Foot & mouth, East coast fever, Brucella	- Establish early warning/response systems closer to the farmers - Responsive R&D
Price	Input/ output price volatility, shortage of quality inputs	- High input prices/costly inputs - Low and fluctuating output prices - Inadequate market information and information asymmetry - Counterfeits	- Strengthen farmer organisations to encourage bulk purchases of inputs and group produce sales; - Contract farming /out grower schemes - Storage facilities such as silos
Institutional	Credit supply, interest rates, market distortions, support prices	- Limited access to credit - Limited access to extension - Limited membership to groups, associations & cooperatives	- Strengthen farmer organisations - Contract farming/out grower schemes - Consolidation of fragmented sources of credit and direct credit to strategic industries - Sustainable commodity supported extension system e.g. CDO - Encourage more elite to engage in agriculture through media, shows, etc.
Labour and health	Illness, death, divorce, injury, availability of labour	- Limited use of protective gear and exposure to hazardous chemicals - Some technologies/practices are labour intensive - Ageing farming population	- Create awareness as well as enforcement of regulations to ensure that farmers take the necessary action to protect themselves - Make agriculture attractive for the youthful population
Political	Agricultural policies, fiscal incentives, taxation, input subsidies	- Political unpredictability (e.g. South Sudan civil unrest impacting Uganda's agricultural exports) - Policy inconsistencies - Land incentives (e.g. free land for foreign investors and not efficiently utilised)	- Policy coherence - Targeted policy incentives in a manner that such incentives crowd in private sector

Source: Adapted and modified from Chatterjee and Oza (2017).

management, there is also urgent need to explore the opportunities that come with drone technology (essentially ICT enabled robots). Many countries have adopted drone technology in agriculture to great effect.

Over the past 10 years, sizable investments have been made in roads to ease market access, and energy which is critical for irrigation and post-harvest management such as running milk coolers and refrigeration. However, public investment in agricultural production enhancement measures has been insufficient to utilise the new available infrastructure. For instance, public investments in energy have been substantive but the energy used to support production is very limited because of high cost of electricity.

A related problem is that the investments in roads and energy have not been matched with comparable investments in irrigation and storage. Government, in collaboration with the Development Partners, has undertaken key investments to enhance access to water for production. As part of Global Climate Change Alliance (GCCA) project, for instance, FAO and European Union

(EU) funded, to a tune of €4 million, the construction of 15 new valley tanks and rehabilitation of five old valley tanks, each with a capacity of ten million litres in the central cattle corridor districts of Mubende, Sembabule, Kiboga, Luwero, Nakasekke and Nakaseke. Notwithstanding these efforts, large gaps still remain in access and use of water for production.

In the absence of proper storage facilities, post-harvest handling is still poor among Ugandan farmers. According to the 2015/16 UNPS survey, majority (54 percent) of farmers pile their harvests on the floor and 43 percent store their produce in sacks and only 10 percent use modern stores. This has implications on price stability, quality, and crop loss. Due to lack of good storage, farmers sell shortly after harvest which forces prices to fall significantly. And when most of the produce is sold, prices rise especially during the dry season hence causing inflation and food insecurity. Poor storage facilities also compromise the quality of agricultural raw materials for agro-processing.

4.3.6 Re-organising agricultural production for industry

Efficient production systems are key to enhancing production and productivity for industrial growth. As highlighted in section 4.1, a Ugandan farmer is producing on fragmented small areas of land. In addition, there are very weak farmer groups that are not strategically organised with limited focus on specific crop enterprises. In other words, most of the existing farmer groups were formed in an ad hoc manner in response to resource availability and program demands by Government. Thus, to ensure supply for industry, the farmer cannot deliver in the current state.

Vorley et al. (2009) and Sjauw-Koem-Fa (2012) suggest four models that can be used to re-organise farmers for a sustainable agro industrialisation agenda (see Table 4). Briefly, the salient features of these models are: under the producer driven model, the drivers of production organisation are small farmers, farmer's organisations and cooperatives, as well as large scale farmers. Their focus is on selling. This includes identifying attractive markets, achieving higher market prices and stabilising market position. The aims of large-scale farmers include extra supply volumes.

Under the buyer-driven model, the commercial chain intermediaries (traders, wholesalers etc.) are added as the actors. The strategic focus in this model is on buying, i.e. sourcing sufficient supplies in set deadlines and with the required quality. The rationale for this model is to assure supply, enhancing supply volumes, as well as to supply more discerning customers (meeting market niches and different needs). With the facilitation model, governmental agencies and non-governmental organisations are clearly distinguished as the drivers of organisation. This is expressed in situations with local agricultural systems where, beside agribusiness operations, there are smallholders to whom agriculture means rather a survival with a little surplus for sale or trade, than commercial production. Lastly, the integrated model is a special type of vertical integration that integrates numerous stakeholders into a value chain through the ownership and/or contractual relations. The drivers of organisation are lead firms, supermarkets or multinational companies. Their goals refer to new and higher market values, low prices for good quality or market monopoly.

In light of the four models discussed above, this Report proposes an integrated model for the AGI agenda in Uganda characterised by a working partnership between public and private sector stakeholders (including farmers and agro-manufacturers). The private sector player has the resources to invest, while the public sector can offer the necessary R&D (driven by industry) and environment necessary for industry survival and this can be passed on to the farmer (through contractual arrangements). Here, the kind of extension support provided is specific to industrial needs and it allows effective coordination of the players. Sub-section 8.2.1 provides examples of how a typical integrated model would work (see, Figure 40).

Currently, the proposed model to some extent, mirrors that employed by Mukwano Industries for Sunflower, NUCAFE for coffee and BIDCO for oil palm. Nonetheless, the Mukwano arrangement has some weaknesses

[26] This model is a special type of vertical integration that integrates numerous stakeholders into a value chain through the ownership and/or contractual relations. The drivers of organisation are lead firms, supermarkets or multinational companies. Their goals refer to new and higher market values, low prices for good quality or market monopoly.

Table 4 Organisational models for agricultural production in value chains

Sjau_Koem-Fa (2012)	Driver of organisation	Vorley et al. (2009)	Crops
Producer-driven	Smallholder farmers themselves, cooperatives, farmer organisations	Producer-driven	Coffee, Cotton, Maize, Beef and dairy
	Large-scale farmers		
Buyer-driven	Processors	Buyer-driven	Maize, tea, coffee
	Exporters		
	Retailers		
	Traders (local), wholesalers		
Facilitator-driven	NGOs and other support agencies	Intermediary-driven	
	National and local governments		
Integrated	Lead firms		Sunflower, Palm Oil, Sugarcane
	Supermarket chains		
	Multinational companies		

Source: Adapted from Vorley et al. (2009) and Sjauw-Koem-Fa (2012).

Box 5 Examples of integrated models of production

Sunflower

Mukwano Industries Limited (A.K. Oils and Fats Limited division) began the sunflower cont
with the main objective of obtaining assured supply of sunflower for the production of edibl
of a high yielding sunflower variety known as PAN 7351. Before the scheme, Mukwano Indu
sunflower from the spot market. However, with the entry of new players into edible oil pro
sunflower seed increased.

The sunflower contract farming scheme followed a multipartite model in which Mukwano In
with Government organisations (NAADS and NARO), international aid agencies, and abou
located in four districts of Lira, Apac, Oyam, and Masindi to massively and sustainably produ

Mukwano set up two additional cooking oil processing factories, one in Lira and the other in
these local and regional expansion programmes, the company's demand for sunflower seed
increase. To meet the oil mill annual capacity, Mukwano required 100,000 metric tonnes of
30 percent (i.e. 30,000 metric tonnes) was supplied by contracted farmers. As a result, the c
contracted farmers to about 150,000.

Source: Elepu and Nalukenge (2009).

Coffee

Given the devastating effects of climate change on coffee (i.e. decreasing arable land, low
low grades), farmers need to undertake additional farm investments required to adapt to cli
nues is the institutional mechanism dubbed 'farmer ownership model' piloted by National Un
and Farm Enterprises (NUCAFE), which allows farmers to benefit from additional profits associa
along each node of the entire value chain. For example, if a farmer were to sell ungraded c
with further value addition (through grading), a farmer earns USD2 for graded AA coffee. Th
addition will enable farmers to invest in small adaptation strategies like drip irrigation, manu
shade tree inter-planting. UCDA in partnership with NUCAFE should widely replicate such in
promote sustainability in reinvestment in climate smart technologies by farmers.

Source: Mbowa (2017).

because it does not lock in farmers to ensure sustainable supply. For farmers to stay committed, the agro-processor/manufacturer must provide attractive incentives (primary payment at the delivery of raw materials and secondary payments after value addition), and even shares in the final product or profit margins, for farmers to feel a certain level of ownership with the final product (Box 5). This will encourage farmers to stay since they have a stake in the value chain.

Such arrangements also allow easy adoption of new crop varieties, specificity in extension provision, and easy involvement of specific stakeholders which will address the challenge of having many uncoordinated actors along the value chain. Furthermore, as insights into the sunflower and coffee value chain show (Box 5), farmers ultimately form farmer groups and cooperatives that bargain for better deals on their behalf. Cooperatives/farmer groups, where they exist, need to be strengthened, and where they do not exist, could pick lessons from successful ones such as the Kalangala Oil Palm Growers Association. Nonetheless, a single production model for all commodities may not be the ideal solution. Choosing between either a producer, buyer, or an integrated model has to be guided by the structure of farmer organisation and how they can easily be linked to support services, and to manufacturers. There is also need to develop a comprehensive farmer database to guide interventions.

a) Given that it will be challenging to change the status quo of smallholder farmers to independently produce for industry, these can self-organise around markets that will be enhanced by the close proximity of a guaranteed buyer (manufacturer).

b) Selective R&D that responds to industrial needs and whose outputs are distributed systematically with extension support. There is need to also ensure that developed crop varieties and animal breeds are suitable for the changing climate patterns in different agricultural production zones.

c) Contractual arrangements be made that give farmers a stake in the quality, quantity, and product outcome of crop or good they are involved in. This will lead to sustainable wealth creation and incomes for household.

d) Government should support established linkages between production and manufacturers. This can be through promoting R&D and extension tailored to the demands of agro-manufactures. In addition, where there are no established linkages, public investment should be directed towards creating effective and sustainable linkages between farmers and agro-manufacturers.

4.4 Conclusion

Ugandan farmers are small, subsistent, and fragmented. In addition, it has been noted that the production base is weak, erratic and on the decline. If the status quo prevails, a sustainable and sound Agro-Manufacturing sub-sector will not be feasible. There is, however, still room to reform and transform the production base by re-organising farmers around agro-industries using specific models that ensure attractive incentive systems. This will ensure that the key enablers for production are integrated in the value chain, and will also strengthen the farm-firm-government synergies.

To unlock the role agriculture plays in promoting a transformative Agro-industrialisation, the following must happen:

5. TRANSFORMATIVE MANUFACTURING FOR AGRO-INDUSTRIALISATION

The previous Chapter demonstrated the gaps in agro-raw material base that need to be filled to suppo Agro-Manufacturing industries in Uganda, and argued for the best model to address the challen production base. This Chapter, on the other hand, provides outlook of Agro-Manufacturing for nir given the current environment, and examines their nature, where they are located, the levels of pro utilisation, installed capacities and gaps. It then makes the case for strengthening Agro-Manufactu commodities through a transformative lens.

5.1 Agro-industry as a Driver of the Manufacturing Sector

Uganda's manufacturing sector is driven by Agro-Manufacturing industries which constitute 679 in the total weight of manufacturing index (Table 5). Given the very large weight of food processing (400) in Agro-Manufacturing, any shock to the sub sector has an impact to total manufacturing in the country. Whereas the weight of Agro-Manufacturing is high, the value of agro-manufactured products remains low.

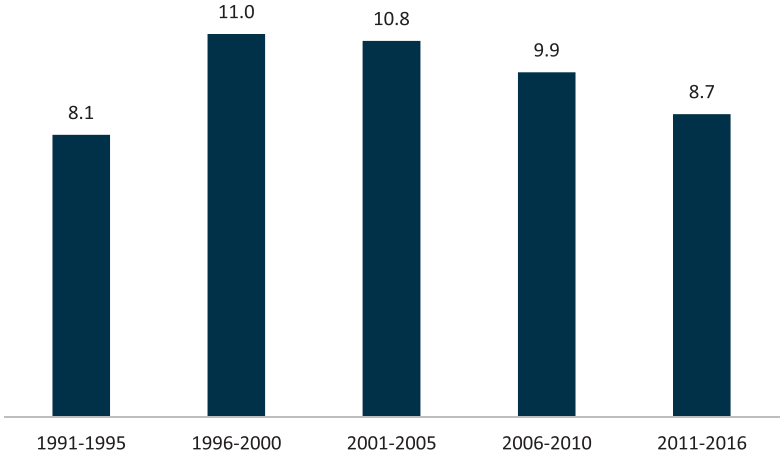
The manufacturing sector grew faster during the 1990s but later started to decline as measured by its share in GDP (Figure 9). The performance during the perio 2011 to 2016 is almost at the same level as that observed in the 1991-1995 period. The decline is partly explained by the dismal performance of the agricultura sector given the fact that Agro-Manufacturing drives the manufacturing sector (Table 5). In comparison with other EAC Partner States, Table 6 reveals that th performance of Uganda's manufacturing sector is lowe than that of Kenya and Tanzania on most indicators.

Table 5: Trends in manufacturing index of production (2002=100)

Description	Weight	Year					Annual %change	
		2011	2012	2013	2014	2015	2014	2015
Total Manufacturing	1,000	186.7	193.4	199	219.7	222.9	10.4	1.4
PANEL A: Agro-Manufacturing								
Food Processing	400	145	158	175	211	190	20.4	-10.1
Beverages & Tobacco	201	251	266	261	288	289	10.3	0.3
Textiles, Clothing & Footwear	43	188	192	139	116	126	-16.2	8.6
Sawmilling, Paper &Printing	35	212	234	249	222	246	-10.9	11.1
PANEL B: OTHER MANUFACTURING								
Chemicals, Paint, Soap & Foam Products	97	219	209	205	214	267	4.8	24.7
Bricks & Cement	75	244	240	251	244	291	-3.0	19.5
Metal Products	83	151	140	149	156	167	4.8	7.2
Miscellaneous	66	157	153	161	191	200	18.1	4.9

Source: UBoS (2016)

Figure 9: Uganda's manufacturing value added as share of GDP, 1991-2016, %



Source: Author's computation based on UNIDO 2016 statistics.

Table 6: Indicators of Manufacturing Value Added for the EAC Partner States, 2016

Country	MVA (constant 2010 USD), Bn	MVA per capita (Constant 2010 USD)	MVA share in GDP	Annual growth in MVA (%)	Manufacturing employment as a proportion of total employment (%)
Kenya	5.7	121	10. 3	4.3	-
Tanzania	3.18	58	6.9	8.4	3.0
Uganda	**2.25**	**56**	**8.7**	**5.1**	**4.4**
Rwanda	0.41	35	4.9	4.7	2.7
Burundi	0.24	21	8.8	-1.6	-

Source: Author's compilation based on UNIDO 2016 statistics.

UNIDO (2016) indicates that the proportion of medium and high value added in total value added stood at 11.1 percent compared to that of Kenya and Tanzania, which were 13.1 percent and 6.8 percent respectively. The low performance, in per capita terms, is largely explained by the high population growth.

Relatedly, Uganda's ranking in industrial competitiveness remains low. It ranked 126th of 148 countries, putting Uganda in a worst performing position after Tanzania (see Table 7). For Uganda to improve on this measure it is important that the manufacturing sector (which is predominantly agro-based) must be boosted and developed with employment of innovative and high-tech activities in production of quality manufactured agro-based outputs for both domestic consumption and export. Innovativeness and R&D are paramount in driving high-tech manufacturing activities.

Table 7: EAC partner states Competitive Industrial Performance Index, 2016

	Kenya	Tanzania	Uganda
CIP rank (out of 148)	102	120	126
CIP quintile	Lower middle	Bottom	Bottom
Manufactured exports per capita (USD)	58.93	47.28	16.1
Share of manufactured exports in total exports	0.5	0.44	0.37
Share of medium and high-tech activities in manufacturing export index	0.23	0.22	0.18
Industrialisation intensity	0.22	0.13	0.18
Proportion of small-scale industries with a loan or line of credit (%)	44.1	11.1	6.3

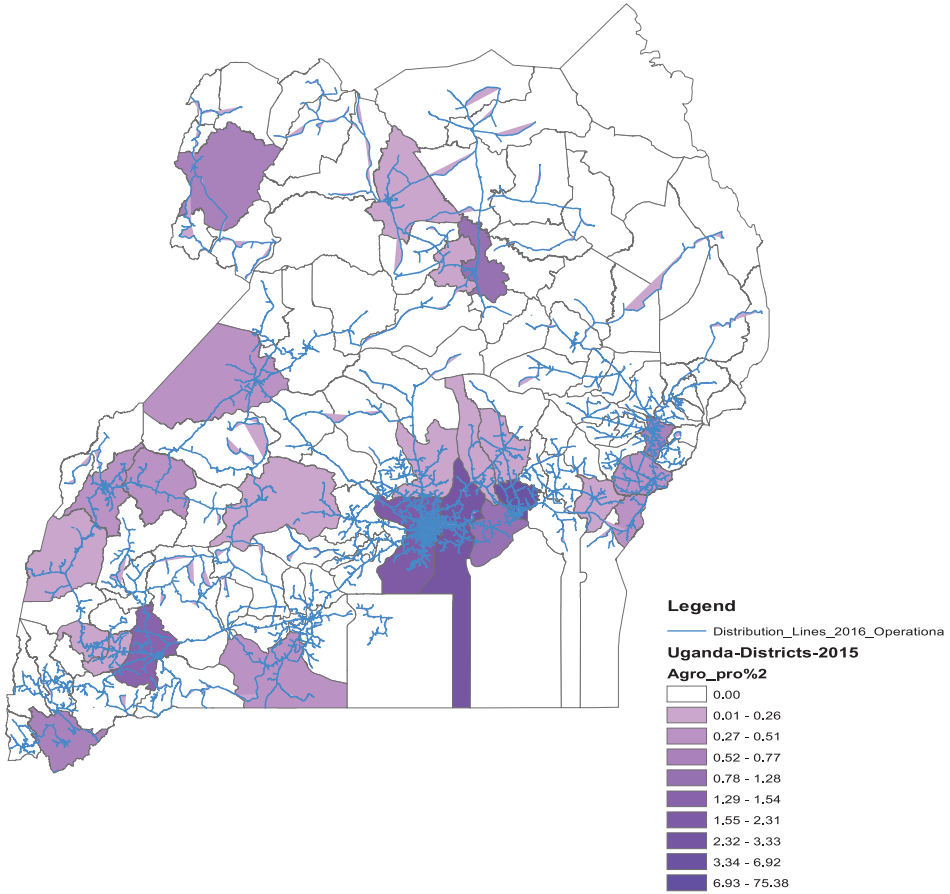
Source: UNIDO's CIP database 2017.

In terms of geographical location, Figure 10 shows the distribution of Agro-Manufacturing industries linked to the network of national grid power line as well as by district GDP per capita. The darker the colour in each of the maps, the higher the concentration of Agro-Manufacturing industries and the higher the GDP per capita. Figure 10 (a) further reveals unbalanced distribution of processing firms. The likelihood of having higher GDP per capita increases with the concentration of manufacturing industries.

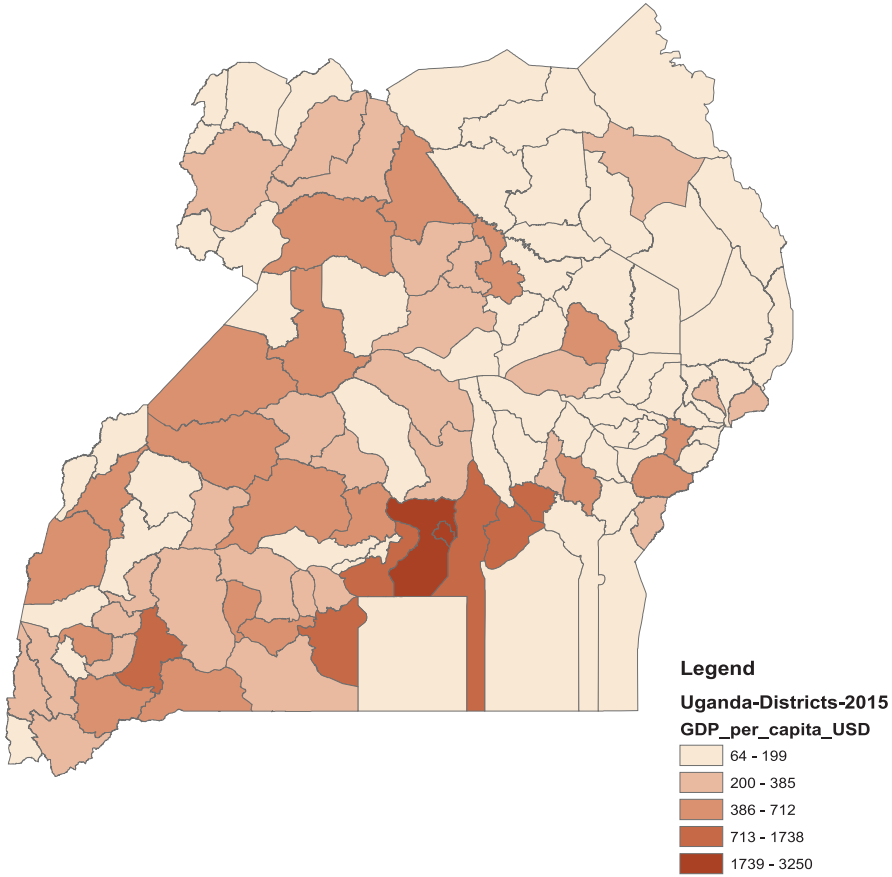
The districts of Kampala, Wakiso, Mukono and Jinja are among the most urbanised and developed, with higher purchasing powers – illustrative of the urbanisation and industrialisation nexus. The concentration of agro-processing firms seem to follow the national electricity grid. The high concentration in one region and dominance of small scale Agro-Manufacturing industries raises issues of capacity to foster inclusive agro industry development in the country.

Figure 10: Distribution of agro-processing firms and GDP per capita by district[27]

(a) Agro-processing firms and electricity distribution lines



(b) GDP per capita



Source: Author's computation using ArcMap (GIS) – based on UMA database (2018) and Uganda Energy Sector GIS working Group data (2018)

27 Notes: Electricity distribution lines (blue lines) are operational lines as of 2018; and the darker the purple shading, the higher the concentration of agro-processing firms.

5.2 An Outlook of Strategic Agro-Manufacturing Industries

This Section deliberates on the current status, and the level and capacity of Agro-Manufacturing activities in the country focusing on nine strategic industries extracting value and products from coffee, tea, cotton, cassava, maize, oil palm, fish, dairy and beef. Specifically, the Section analyses the potential product space for each commodity and capacity utilisation. Proposals are then made of interventions that would bring about transformative shifts leading to a dynamic, adaptive and flexible Agro-Manufacturing sector in the country.

5.2.1 Coffee industry

Uganda aims to earn about USD2.5 billion (about UGX 9.4 trillion) by 2030 from exporting 20 million bags of coffee per annum. The country produces two types of coffee – Robusta and Arabica. Coffee exports in financial year 2017/18 fetched a total of USD 483 million from the exports of 3.34 million bags of Robusta (worth USD 346 million) and 1.08 million bags of Arabica (worth USD 138 million)[28].

Figure 11 is an illustration of the coffee industry value chain for the two coffee types grown in Uganda. The coffee industry is supported by a network of 1.7 million coffee producing households, 506 buying stores, 454 processing factories and 22 washing stations (primary processing facilities), 21 exporting grading plants (secondary processing), 49 exporters, and 16 roasters (tertiary processing) as the major value chain players[29]. Value is added to dry cherries of Robusta sold by farmers and aggregated at the buying stores by hulling unprocessed coffee to graded Average Quality Clean Coffee (FAQ). Majority of the coffee primary processing factories are in South Western Uganda (34 percent), followed by Central Uganda (27 percent), and Eastern (20 percent). Coffee remains a new crop in Northern Region and is still grown on a small scale. This partly explains the lack of coffee factories in the Region[30]. Most of the existing primary and export grading plants operate at about 40 percent of installed capacities. FAQ is sold to exporters by either farmers or owners of the primary processing factories (hullers). Exporters grade FAQ (a secondary processing level) and export it as graded green Robusta to conventional markets – which account for 98 percent of buyers.

Arabica Coffee For Arabica coffee, two unique on-farm processing methods (dry and wet processing) characterise the final coffee product space. About 60 percent of Arabica coffee is from the Rwenzori sub-region. Wet processing is common in Mbale (Mt. Elgon) and in Zombo and Nebbi districts. Arabica coffee from these districts is sold as graded Wet Bugisu Arabica (WBA) and Okoro Wet Un-Graded Uganda Arabica (WUGARS), respectively. There are only two washing stations (pulperies) in West Nile due to predominance of Arabica coffee which is wet processed. The dry processed Arabica originates from Kasese, and is sold as Rwenzori dry processed Uganda Arabicas (DRUGARS). The bulk of these coffees are sold in conventional markets, with only seven percent of WBA sold in the specialty and domestic markets; with domestic market accounting for only about three percent of sales (Figure 10).

Product space in coffee industry: There are four (4) core categories of industrial products in the coffee sector: (i) the ungraded FAQ Coffee (ii) graded clean green Robusta and Arabica coffees; (iii) un-graded Dry Uganda Arabicas; and (iv) the roasted and grounded coffee. Grading at secondary processing of FAQ (into graded clean green Robusta and Arabica coffee[31]) and parchment (graded wet processed Arabica) expands the product space and innately increases the unit value per kilogram in the international coffee market (Figure 11).

In financial year 2016/17, Uganda exported over 10 grades of Robusta coffee, with prices ranging between USD1.3 and USD2.4 per kg – driven by the coffee grade. However, Uganda's bulk coffee exports are low grade Robusta (mainly screen 15 and 12).

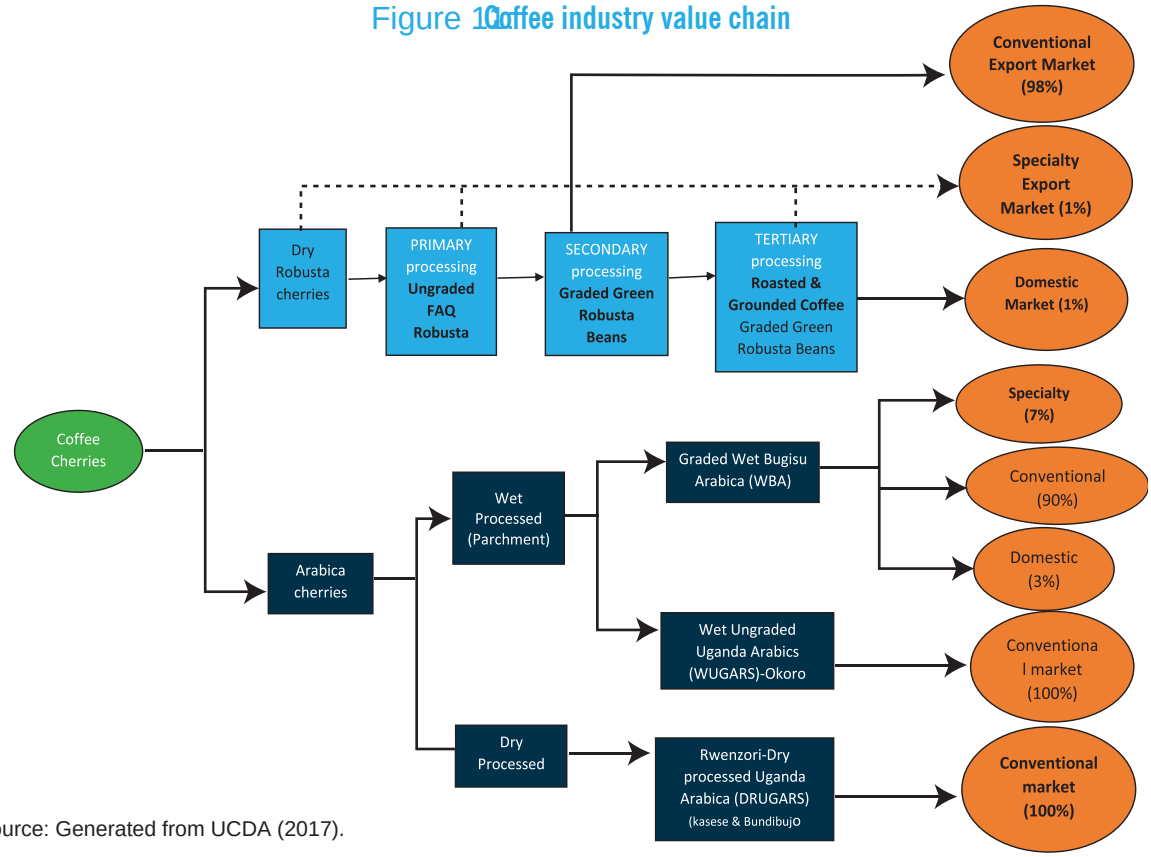
28 Bags are in 60kilograms and for further details refer to UCDA (2018).

29 see Mbowa et al. (2017) 'Does Coffee production reduce poverty? Evidence from Uganda', Journal of Agribusiness in Developing and Emerging Economies, 7(3): 260-274.

30 Farmers selling a Kg of kiboko earns UGX 2,200/-. The equivalent to FAQ (0.6kg) earns a farmer UGX 2,640, giving a price margin of UGX 440 per kg.

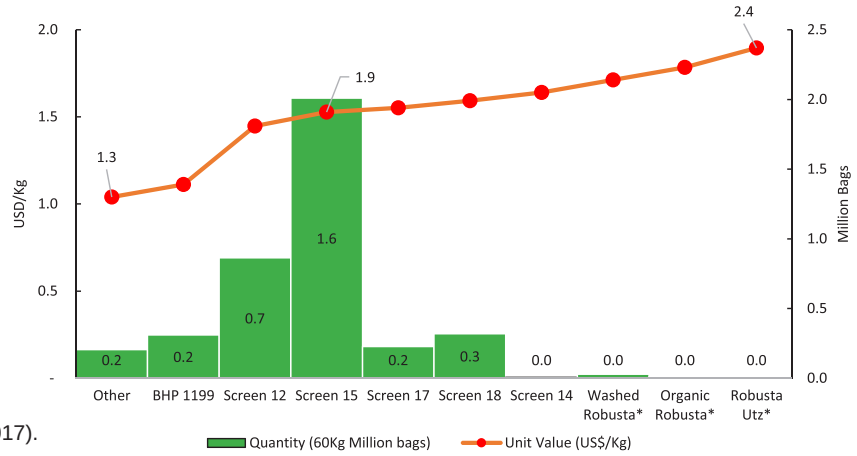
31 Evidence from dry coffee cherries (kiboko) gives an outturn of 0.55-0.6 kg of FAQ.

Figure 10: Coffee industry value chain



Source: Generated from UCDA (2017).

Figure 12: Robusta coffee exports (million bags) and unit price (USD) by grade, FY2016/17



Source: UCDA (2017).

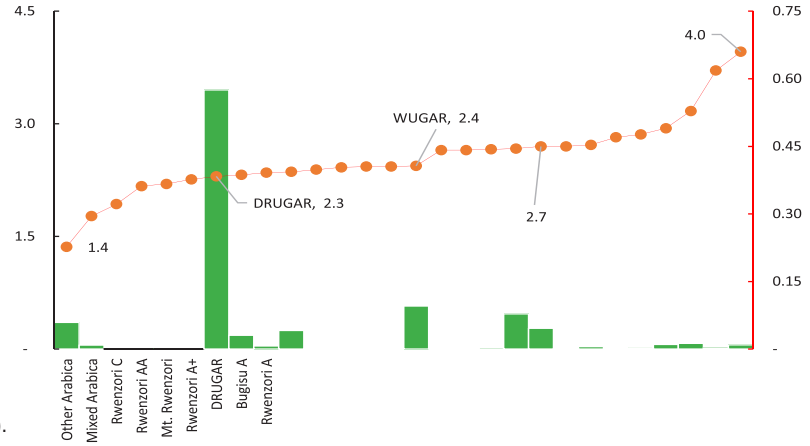
Arabica coffee is assorted into 28 different grades[31] (Figure 12). The international prices ranged from USD 1.4 to USD 4.0 per kilogram depending on the grade.

Arabica coffee can be both wet and dry processed as earlier mentioned. However, dry processing diminishes the quality and lowers the grade in the international market. The bulk of Arabica coffee (58 percent) is sold as DRUGARS.

Generally, with the exception of specialty markets, Arabica coffee grades (e.g. Elgons, White Nile, Mt Elgon AA, Organic Okoro, Bugisu PB, and Organic Drugar) earn premium prices if they are wet processed and graded. For example, the Bugisu Arabica coffee is wet processed, graded and sold in the international

31 Arabica coffee is graded/classified along four (4) main criteria: (i) the specialty coffee – with traceable intrinsic attributes e.g. aroma, cup taste, organic etc.; (ii) the wet processed and graded Arabica; (iii) wet processed and ungraded; and (ivi) dry processed without grading.

Figure 18: Arabica coffee exports (million bags) and unit prices (USD), FY2016/17



Source: UCDA (2017).

markets as WBAS. Grading creates grades such as Bugisu AA, Mt Elgon AA+ that fetch high premium prices about USD 2.4 on the international market (Figure 3). On the other hand, Arabica coffee from West Nile called (Okoro) is exported as WUGARS.

The level of tertiary processing of roasted and ground coffee remains minimal. At the moment, there are inelastic responses to domestic and regional consumption of high value manufactured coffee products. National output of roasted and ground coffee currently constitutes about 1 percent (0.041 million 60-kilo bags) sold in specialty markets, and 1 percent (0.041 million 60 kilo bags) consumed in the domestic market. The prospects for further upgrading and integration in the coffee Global Value Chain (GVC) lies at this stage. However, it is quite apparent that this opportunity is yet to be exploited to the fullest potential.

Exporting graded green coffee beans to the conventional export markets (see Section 6.2 for details) implies that Uganda remains integrated at the lower level of the coffee GVC. Nevertheless, this remains a sure market for most of the Uganda coffee produced, and is where Uganda has a comparative advantage in the medium term. Experts[32] report that 'the global coffee consumption has for the past five decades been growing at a rate of more than 2 percent per annum, and it is projected that by 2030 the market will require an addition 50 million bags'. In the long-run therefore, there is huge potential that waits exploitation.

What are the required transformative shifts?

The discussion above shows that, in the short and medium term, the coffee industrial activities will require strategic transformative shifts to foster effective and sustainable linkages between production and marketing segments of the value chain. This can be achieved by focusing on increasing both production and productivity (see Chapter 4), and developing the soft and hard infrastructure to uphold high quality standards of coffee produced and exported. There are dividends of maximising value by concentrating on improving the grade of coffee produced and exported. As such, some of the pathways to unlock the coffee value-adding opportunities are outlined below:

a) Promote public and private investments to improve the grade of coffee produced and export level. However, leveraging the grading outcomes is highly dependent on farm level crop husbandry practices (i.e. irrigation, use of fertilisers, disease control and other appropriate farm management methods, rehabilitation of old coffee trees) as discussed in Chapter 4. Addressing these binding constraints require long-term financing as will be discussed in Chapter 7. As an option, there is need to review the cess tax – which is now at 1 percent – in order to raise more funds to support: (i) the industry specific extension

32 Joshua Kato (August 2018). Coffee: 'How black gold can drive Vision 2040'. Reported in New Vision, Monday, August 27, 2018, page 34.

MOFPED#DoingMore

EPRC
ECONOMIC POLICY RESEARCH CENTRE

FOSTERING A SUSTAINABLE AGRO-INDUSTRIALISATION AGENDA IN UGANDA

2018